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# 1999 Valuation Actuary Symposium

**Los Angeles, California**

**Session 180F**

**Small Company Issues**

**Moderator:** Paul J. Sulek

**Panelists:** Charles K. Chacosky

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*Smaller companies do not have the same level of resources as large companies to call upon for dealing with emerging regulatory and actuarial requirements. This session provides participants with an opportunity to hear and discuss a variety of issues of particular interest to valuation actuaries in smaller insurance companies. Topics for discussion are:*

- *Regulation XXX*
- *Actuarial Guidelines 33 and 34*
- *Illustration Actuary*
- *Current Regulatory Proposals*
- *Proposed New Section 7 Requirements*
- *C-3 RBC Based on Cash-Flow Testing*
- *Use of Outside Consultants*

**MR. RODNEY A. KEEFER:** A survey was sent to the Smaller Insurance Company Section membership on approximately August 1 to try to find out what issues were having the most impact on smaller company actuaries. What steps were being taken to address these issues, and what systems, tools, or other resources were enabling us to deal with these issues effectively. I want to thank the Society staff, particularly Lois Chinnock who helped us pull off the survey on fairly short notice.

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

The first question we asked on the survey was, “Who is your current employer?” The majority of the group, about two-thirds, responded that they were from smaller insurance companies, and that is consistent with the composition of our section.

The second question was, “What issues are impacting your work in the balance of 1999 through 2000?” In case you might be wondering why illustration actuary concerns are on the program, as you can see from Chart 1, this item edged out Regulation XXX as being the issue that was having the most impact. This chart shows how each of the other issues ranked as well.

The third question is, “What plans do we have for addressing each of these issues?” We intentionally left that question open to mute general comments. With respect to illustration actuary requirements, the responses fell into three categories: testing, certifying, and adjusting products and systems for compliance.

Determining the affected plans and performing the analysis were the standard responses related to testing. Rather than review each slide in detail, I will just highlight what I thought were some of the more interesting responses. One person said that his company was trying to improve the analysis each year, which suggests they may be trying to do more than just meet the minimum requirements. Adjustments to products and systems for compliance affect mostly term and universal life (UL) policies with no-lapse guarantees. These products are also the areas identified as being most affected by Regulation XXX.

With regard to certifications, there were no big surprises, except that at least one respondent said his company is filing notices with the regulators stating that they are not illustrating any new products. Apparently, the regulation is having some impact even on companies that are not selling any new business.

Regulator XXX. The responses were categorized as testing, redesigning products, getting help from consultants and reinsurers, documenting, setting up administration systems, and “other.”

As for testing products, the main areas of concern were pricing, reserves, term and UL products with no-lapse guarantees. Under product design, the most common adjustment was shorter guarantees. Although, one person explicitly mentioned increasing premiums, I found it interesting that not many others listed that possibility as a strategy. Many were talking about shortening guarantees, but not many were discussing premium increases at this point.

One interesting item related to getting help from consultants and reinsurers was that a couple of people said they were willing to pay a consultant to help them better understand XXX. The documentation/administration comments tended to deal with the development of X factors at companies that are trying to keep the longer guarantees. Other strategies include comments such as, "We are going to wait to see if our state adopts the regulation." Based on what we have heard at this symposium, it sounds as though half or more of the states are well on their way to doing that.

The next issue is C-3 risk-based capital (RBC) based on cash-flow testing. Many respondents basically said they did not have any plans other than just monitoring and seeing how it affects their companies; however, a couple of people said that, if it comes to pass, it's going to be a major effort for their companies to comply.

A number of companies said they had to purchase new valuation systems or modify current systems to deal with Actuarial Guideline 33, which is basically a clarification of CARVM. One person indicated that the guideline was forcing his company to take a close look at new product features that might not have been considered originally, such as nursing home riders.

Although many of us are already doing cash-flow testing, a couple of people said that the Proposed Section 7 requirements will have some impact. One company that is active in the area of joint ventures said this item could have major implications. The next two issues were Guideline 34 and 35. I think most companies surveyed do not offer variable or indexed products, so we didn't get a lot of comments on these items other than those that say they may be a nuisance to track. A couple of people called me to ask, "What is Guideline 35?" If you were one of them, hopefully it's not going to affect you.

“Current regulatory proposals” was kind of a catch-all category, and we did not get a lot of responses here. However, we did get some general comments that did not address any specific issues. The one I saw more than any other, which came from both company actuaries and consultants, was that they expected an increase in consulting engagements. That will be good news for some of our panelists.

Question four was, “what other issues are affecting your work over the next year and half?” Y2K was probably the most common response. Entering new lines of business or developing new products was another. Other issues that were more of a regulatory nature included RBC requirements for health insurers and the unified valuation system.

The fifth question we asked was, “What systems do you use for the various types of reserving requirements?” A couple of people tried to warn me before the survey went out that this question was probably too vague to elicit any meaningful input. Some people listed specific vendors and specific companies. Other people told us they use mainframe systems or vendor-supplied systems. What I tried to do was generalize the responses into the different categories, and in some cases, the categories might overlap or might not be the perfect matches. In Chart 2, the first bar in each group represents what I classified as mainframe systems; the second bar represents vendor-supplied systems; the third bar is home-grown or spreadsheet systems, and the last bar indicates the use of consultants. The tallest bar, in most cases, is vendor-supplied systems, especially in the case of cash-flow testing and asset adequacy work.

Question six was, “What resources do you find helpful?” We grouped the responses into the following categories: web sites, professional guides and other publications, publications of specific organizations or firms, and other. I should point out that anything appearing in the following slides — a specific company, individual, or any other kind of name — does not represent an endorsement from the Society, the Smaller Insurance Company section, or me. The intent is simply to report the information as it appeared on the survey responses. As for web sites, the NAIC web site ([www.naic.org](http://www.naic.org)) and the SOA web site ([www.soa.org](http://www.soa.org)), were the two that were most often mentioned. A number of others were mentioned as well.

Professional guides and industry publications included the *Life and Health Valuation Law Manual*. Is any one in the audience using the *Life and Health Manual* on-line? A couple responded that their companies did that in 1999. I do not recall what the cost savings was, but I know we had some problems the first time we tried to log on. We called someone at the Academy who put us in touch with its web master, who made some adjustments for us and gave us a new sign-on.

It's pretty slick. If you are looking at a large document, it can be a little slow moving around from page to page. Still, we have found it to be quite useful. There are also individual firms and publications. Again, I will not mention any specific names, but there was one firm whose newsletter and other resources were mentioned often. Finally, other resources include Society meetings and seminars, and one person said the notebook she had kept for 20 years was her best resource. I encourage us all to work on that.

The last section of the survey asked who was interested in being included in a peer directory for networking purposes. This directory was recently compiled and sent to about 35 individuals. I hope we can use this and other opportunities like it to share information with each other.

**FROM THE FLOOR:** Where can you find the on-line valuation law manual?

**MR. KEEFER:** I think you have to purchase access from the American Academy of Actuaries. You can call the Academy to get the information.

**MR. PAUL J. SULEK:** The valuation manual is available through the Academy. I think you have several choices. You can buy the paper version each year or you can buy the on-line version. I do not remember the savings, but the on-line version was quite a bit less.

**FROM THE FLOOR:** You save \$50 with the on-line version. Where is it on the Internet?

**MR. KEEFER:** You have to get a sign-on code and password from the Academy. They can give you the specifics if you call them. Chuck Chacosky is going to talk to us about Regulation XXX, Guidelines 33 and 34, and the use of outside consultants.

**MR. CHARLES K. CHACOVSKY:** I'm going to talk about Regulation XXX and Guidelines 33 and 34, and the use of consultants. There are specific sessions that will address Regulation XXX and Guidelines 33 and 34 in very explicit detail.

The new Regulation XXX has a lot of new things in it. One of the most important things is this concept of a 20-year select factor and an X factor. I'll get into that in a little more detail. If you do this, you're subject to doing an actuarial opinion and a report every year, so, it creates a lot more work. The new XXX eliminates the old concept of the five-year rate guarantee exception, but it gives an exception for true yearly renewable term (YRT), and it defines that a true YRT actually is. There is good news. It'll help give some relief from the 1980 CSO deficiency reserves. I'll go into a little more detail later. There's actually hope that this might be effective as of January 1, 2000 but we will see.

Regulation XXX applies to a very broad range of products. It's probably easier to say what it doesn't apply to. It doesn't apply to re-entry policies that are issued from prior issues. That sounds a little confusing, but if you did some re-entry term in the past, and someone gets a new policy next year, that doesn't necessarily apply. It will apply to universal life (UL) if it has a secondary guarantee period, if it is less than five years in length, the secondary guarantee premium requirement is greater than the net level premium, and the initial surrender charge is greater than the first-year annualized premium.

It has to meet all three of these categories — the guarantee period, the premium relationship to net level premium, and the surrender charge being greater than the first-year annualized premium. All three of them must be met if you have a secondary guarantee.

I want to emphasize that the definition of a secondary guarantee is going to probably be loosely defined. It won't necessarily be that your contract says there's a secondary guarantee. If the regulator or your

auditor or the examiner finds an implied secondary guarantee, they're going to say that that's a secondary guarantee. There's some thought that you could read this literally. If your contract doesn't explicitly say a secondary guarantee, then you're exempt. It doesn't look like that's going to be the case. Variable life and variable universal life (UL) are exempted from Regulation XXX, but it's going to probably come under another future regulation. Group life will be exempt without maximum premium guarantees greater than one year.

One of the basic concepts in Regulation XXX is you'll have your traditional humpback. This is the phrase being used now for reserves. That's where it starts at zero and ends at zero. The level premium segment is actually a slightly new concept, and XXX defines a level premium segment as one that begins and ends when the premium changes more than the underlying valuation mortality  $qx$ 's. You could have an increase in premium, and if it's increasing at the same rate that the valuation mortality is increasing, then that's still considered a level premium segment even though the premium's aren't level by the old definition. In no case will you be able to hold a reserve less than one-half  $cx$ . There are cases where you'll have to hold unitary reserves, especially if they're greater than traditional. Unitary is not defined anywhere differently than it has been defined in the past. You used a constant percentage of gross premium for your net premiums. We're still using the 1980 CSO Tables for our valuation bases, but we get these optional 20-year select factors.

These are the basic reserves. There's no X factor for basic reserves. Don't get that confused and apply it to the base. You can use that X factor for deficiency reserve calculations, but you can use it only for the first level premium segment as defined earlier. The X factor has a lot of interesting things happening to it.

The X factor can vary by any policy factor that you would expect to affect mortality, such as age, issue year, class, and so on. It cannot be less than 20% and cannot decrease by any policy year, when it starts, by policy duration. It can decrease over time, and I'll circle back to that. One of the other requirements is the present value of the future death benefits have to be greater than the present value of the expected death benefits once you apply the X. That seems kind of intuitive, but it depends on the



slopes. There may be occasions when, in one of the projection years, you apply your X factor, and you actually get that valuation  $qx$  that's lower than your expected  $qx$ .

That's all right if you have other years where it averages out and you end up with a present value that offsets that. However, in each of the first five projection years or policy years, your valuation  $qx$ , after applying this X factor, has to be greater than the expected  $qx$  in each one of those years. That is an absolute for the first five years. After the fifth projection year, it can dip down as long as it still holds that present value calculation.

Now things get confusing. X may decrease. The next time you do your valuation, you can decrease your X. Let's say that the first year you do this, you put your X in an 80%. The next year, when you have to do your annual report, you can look at your experience and say, I really could use an X of 75%, that's all right. You can lower your X to 75%, as long as you can justify it, but you don't have to decrease it. If your study said it should be 85%, then you must increase it. If you have any policy for which you decide to use an X of less than 100%, then you must do a Section 8 opinion, and you must do an X report. Your X report covers all the policies that are subject to this regulation, not just the ones for which you've used an X. You have to show all these present valuation calculations and how your aggregate  $qx$  is going to be greater than your expected  $qx$ . If you do a Section 7 opinion and want to use this X factor, it will be a major change for you.

There are a lot of unresolved issues. The Society is working on an Actuarial Standard of Practice (ASOP) to show how you should do your X. Larry Gorski wrote a paper on how to do your Xs. You might want to look at that if you're thinking about doing an X. You can use your reinsurance results to bolster your X and get information from your reinsurer to figure out what the X should be. There is a risk that you'll have to raise your X, and that'll raise reserves effectively and retroactively. That could cause a major problem or disconnect with pricing. That's a word of caution. When you're setting your X, you might want to leave yourself a little room. There is a question in my mind about what happens if you had set an X of 80% and now experience says you need to put an X of 120%. Can you not do any X's and hold at 100%? It's going to be a question that will arise some day. Of course, the big question is, if you do want to do an X, you have to do a Section 8 opinion and an actuarial report, and that's not free. You have to think about the cost of that.

I think there are now two states that have adopted Regulation XXX and probably about 30 are likely to adopt. The State of Washington is actually considering adopting XXX with no X factor. That will really affect reserves a good bit. Different vendors are working on software packages, and, as I understand, there's a Guideline XXXX for variable business that might come down the road. There's always going to be something new.

I'm going to switch to Actuarial Guideline 33. This was effective last year-end, and it was retroactive, so it brings issues back to January 1, 1981. It has a three-year phase-in, and it uses the integrated benefit stream approach to the Commissioner's Annuity Reserve Valuation Method (CARVM). It separates the benefits into two types, nonelective and elective, and it mandates how you do these. It's still a greatest present-value approach. Hopefully, most of you have already done some stuff with Guideline 33. I know some people are still wrestling with that. It looks at full and partial withdrawal benefits and full and partial annuitization benefits. One of the more detailed things in there was the concept that if you guaranteed policyholders when they annuitize, they could get the current annuity rates then available, if they're greater than the guarantees; then you have to test that for reserve purposes as an annuitization option. That actually does affect some companies. You have to value nonelective waivers, such as nursing home waivers and stuff like that, and that almost always adds to the reserves. Many people miss this, but Guideline 33 has a minimum reserve of 93% of the fund value. Effectively, you can't take account of a surrender charge greater than 7%.

Guideline 34 was also effective at last year-end, and that affects variable annuities and minimum guarantee death benefits. Based on the survey results we got, I don't think this affects many of you, but I do want to talk about it briefly. I think this is something that might affect you in the future. If it does affect you, you ought to be familiar with it. It only addresses guaranteed death benefits. It doesn't address guaranteed minimum living benefits, such as accumulation or income benefits. But they will be addressed under another regulation quite soon. It also has a three-year phase-in, and it uses the greatest present-value concept. You have to assume that people die at 110% of the group annuity mortality table, and you must also assume that there is an immediate drop and recovery of the assets. I think Connecticut just assumes a one-third drop.

Table 1 is a good illustration. These are the actual rates that are in the guideline. For example, if your variable fund is an equity fund, you assume there's a 14% drop immediately upon the valuation date, and there's an annual recovery of 14%. That doesn't necessarily mean one year because you could have charges over that year. It might take a year and two months to get it back. You're holding a 14-month yearly renewable term reserve for that.

**TABLE 1**  
**Actuarial Guideline 34**  
**Drop & Recovery Rates**

Asset Class	Immediate Drop	Annual Recovery
Equity	14.0%	14.0%
Bond	6.5	9.5
Balanced	9.0	11.5
Money Market	2.5	6.5
Specialty	9.0	9.5

There are basically four types of minimum guaranteed death benefits. There's the return of premium, which is not all that common, but it is found in some places. That essentially guarantees that when you die, you'll get all your premiums back. There's the reset version and the ratchet version, which are pretty much the same. A roll-up is a little more difficult. I've seen all of these, and they have different levels of exposure. This is actually a statutory concept. I actually had some data on a GAAP concept.

Charts 3–6 show the cost basis at the valuation date on a GAAP assumption, which might be a little more onerous. It depends on your own experience, too. In this particular client, we are looking at a return of premium that is probably the least costly. Someone who was age 50 was only 0.29 basis points, which isn't very much at all. If we go down to the roll-up of someone age 50, the cost was a little more than three basis points in reserves, and the ratchet was probably the most expensive. At age 50, it's almost four basis points, but if you issued this to a 70-year old, you might see a 21-basis-point cost, which actually starts to hit home. On a statutory side, we don't usually see a whole lot of cost,

especially in the last few years because the market has had pretty good roll-up by December, and there usually isn't too much exposure at that point in time.

Things might be different in 1999. When you're working in January, and you have some variable annuities, we might see some cost. I think about 65% of the stocks in the NYSE are down. I don't know what the next three months are going to be. If I did, I probably wouldn't have to be working.

**MR. SULEK:** Chuck, you mentioned the article by Larry Gorski regarding X factors. Was that the *Financial Reporter*?

**MR. CHACOVSKY:** I think it was in either the May or June *Financial Reporter*. He talks about a Monte Carlo technique and a minimum size for reliability. It looks like the ASOP is going to be a little looser than that. Not everyone has enough experience to allow you to rely on rolling up other like experience or other industry experience in making your X assumptions.

**MR. SULEK:** How would you comment on the appropriate response of a small company actuary to the extraterritorial implications of things like Regulation XXX and Guidelines 33 and 34? What about this Washington X factor thing? Do we have to hold at least 1.0 if Washington requires that?

**MR. CHACOVSKY:** You might choose to not issue any policies in Washington. That might be a good move. If you're domiciled in Washington, I wish you a good bit of luck. I had a client who was domiciled in Washington, and fortunately, I won't be that company's valuation actuary this year. It's not really clear how retroactive these are going to be when adopted or how fast people can move. I'm hearing comments at this meeting that reflect most companies haven't really filed new products, and they're almost taking a wait-and-see approach. That may not work for the small companies because these might get passed in July 2000. They're pressing for a retroactive effective date to January 1. Your issues in January and February could have a good bit of surplus strain or you'll be faced with having to do a Section 8 opinion and all that. I think you need to look at this in the fourth quarter and really keep this in mind.

**FROM THE FLOOR:** What are the alternatives to a long-term guarantee? Will some kind of shadow fund work?

**MR. CHACOVSKY:** The answer to the last question is, I don't believe a shadowing fund will work. I believe the regulators, your auditor, or someone will step up and say, "This really is a secondary guarantee, and XXX does come into play." I can't really comment on the alternatives to a long-term guarantee because everyone who is working on this is really keeping this quite secret because XXX is really going to put the actuary on the hook more so than any time in the past. We haven't had this ability to just take the formula reserves and then multiply it by X where X could be 20% or 40%. That's very different from the formula reserves. I don't know how we do that for valuations and for pricing. The actuaries are keeping very quite about it. I hear about maybe going to a decreasing face amount, more like a mortgage term. I heard people talking about par coming back. I don't really know. I think we're going to have to see what develops. It may be a combination of a guarantee of some part of the face amount at one rate and some sort of guarantee of return of premiums if we raise the rates. None of those are really going to work in the long run and maybe not even in the short run. I think the answer is there is going to be less long-term sales.

**FROM THE FLOOR:** Non-term sales are not affected right?

**MR. CHACOVSKY:** If there's a secondary guarantee, it is affected. This does bring in traditional whole life, even if there is a secondary guarantee. It actually has a benefit if you have deficiency reserves on whole life, but I believe it will affect that.

**FROM THE FLOOR:** Is the X factor initially set at a valuation date or when you file the policy?

**MR. CHACOVSKY:** The answer is it's set on each valuation date. The first year you'll be doing this first valuation date is December 31, 2000. That will be the first time you'll set your X factor. You could have 62 different X factors for all your business. If you look at each policy that was issued in 2000, you might say that one should get an X factor of 38%, another should get an X factor of 45%, and others should get an X factor of 87%. You'll set your first set of X factors, the first valuation, after

the effective date. You have to look at new issues for that new year and look at all the prior years.

Write a report and opine on the aggregate level of the X

factors. If you feel you need to increase them, then it would be retroactive. I certainly wouldn't be pricing a product today not knowing what X factor I plan to use tomorrow. You can't really price your product if you don't know what reserves you're going to hold, although I have clients that do that.

**FROM THE FLOOR:** If you are domiciled in Washington, can you use an X factor less than 100%?

**MR. CHACOVSKY:** First, Regulation XXX hasn't really been adopted in very many places yet. In the event the year 2000 comes around, and 30 states have adopted XXX, which is not an unlikely event, one of your possible solutions is filing a separate blue book in the State of Washington that meets its requirements. Some companies do that now for other states, such as New York. You hold those reserves for all and make it extraterritorial. I think that was actually Paul's question to a certain extent. That would be very capital intensive. You may take the position that there's no policy, or you may not issue any policies in Washington. You cut sales off there so that it wouldn't be affected. There are different possible answers. You could have a separate policy in Washington that has no guarantees. It wouldn't apply.

**MR. BRETT E. MORRIS:** I'm going to cover many topics. When looking at a valuation system, you should look for it to be complete. It should be efficient both at the system level and in total. Something you might not have considered is, you should look for customer support if you're going to buy software from someone. Then, if you did decide to go out and look for software, what might you do next?

We've heard a lot about statutory reserve requirements as they pertain to valuation system completeness. In Session 1, we heard about statutory, tax, and GAAP. If you are going to go out and look for a valuation system, then you ought to look at it satisfying your statutory, tax, and GAAP needs. We've heard about Regulation XXX and Guideline 33. On the GAAP side, you ought to look for your system to handle *Financial Account Standard 60 (FAS 60)*, *FAS 97*, *FAS 115* for capital gains, and *FAS 120* for your par products. On the purchase GAAP side, you

ought to be familiar with Emerging Issues Task Force (EITF) 92-9. The system ought to handle that purchase accounting rule. You ought to look for alternative minimum reserves as a calculation.

On the traditional side, ideally you'd be able to do a basic reserve calculation and an alternate minimum reserve calculation in one pass. Gross premium valuations are not a requirement but they would be nice to have. If your system can do GAAP, then it's not much more difficult to do gross premium valuations as well. Something you might not have thought about was when you do your statutory reserves or even your GAAP reserves, you're going to need premium accruals as well. You're going to need due and deferred premiums probably on a statutory and a gross premium basis. We don't want to forget about reinsurance either. We need to calculate our ceded credits as well.

Another thing that you might have forgotten about is riders and supplemental benefits. When you turn off the old valuation system, you don't want to forget that you still have to calculate your waiver of premium and accidental death benefit (ADB) reserves or the miscellaneous liabilities. There has been a lot of focus on Guideline 34. Don't forget, if you have variable universal life, you have a liability there for any guarantees.

Let's move on to valuation system efficiencies. One of the things that you can get nowadays is a first principles valuation system. We're all familiar with the old factor-based approach where you use some method to load up a library of factors and then apply those factors to in-force business. One of the advantages of having a first principles valuation system is when you have to change an interest rate, whether that's the statutory valuation interest rate or the tax interest rate. We know the tax interest rate is going to change every year. It'd be nice to have a system where all the parameters are coded up, and you just change the tax interest rate. You're ready to go for the next year of issues. If you want to do a source of earnings type calculation, you'll have to have the first principles coded up. We won't know what the underlying assumptions are in our reserves if we don't have those coded up for first principles. This missing factors past the first 20 years is maybe an old problem that a lot of you corrected. If you code up the calculations from first principles, you won't be missing those later duration factors any longer.

Ideally, for problem plans, it's nice to do everything by first principles if you can, but your system ought to be able to support factors as a fallback position. If you can't describe a complex plan under first principles, there is another nice thing to have. Once you've done your statutory, tax and GAAP valuations, you understand the results. Maybe you have a paper copy, but it'd be nice to have an automated approach to export those results to the general ledger or wherever they need to go in the company. Another nice thing is whenever there are errors in your valuation runs, and you make a correction, you'd like to be able to just run a valuation where only the errors are processed. This would make for quicker run times. That may not be such a big issue with today's PCs and your small company in-force business. Your valuation could take less than an hour anyway.

Under this topic of total efficiencies something you might consider in purchasing a valuation system is what kind of add-ons you can expect. One of the things that's available is a history-gathering module. This is required for *FAS 97* and *FAS 120*. You have to know what your historical margins are in order to calculate your deferred acquisition cost (DAC). We've heard a lot of talk about the X factor. How are you going to set that X factor? It sure would be nice to have history in some kind of a database linked to your valuation assumptions where you could do an experience study. As I mentioned before, there are sources of earnings. It'd be nice to not only do a prospective source of earnings study but also a historical source of earnings study.

Another module that is available is projections. If you implemented new valuation systems on first principles, then it's natural to have a projection system tied into that so that your projected reserves are exactly on the same basis as your reported reserves. Of course, projections are required for *FAS 97* and *FAS 120*. Another nice thing about the projections is you would use the same in-force business. There's the possibility of no modeling at all, and just projecting seriatim. Your projection ought to include reinsurance and supplemental benefits. To be realistic, you not only want to project the in-force business but new business as well if you're doing a business plan. Then I mentioned sources of earnings.

Under customer support, when you look to purchase software from a vendor, you ought to look for training. You don't want the software just dropped off. You also should look for telephone support. You issue a new product, and it's different from something you've done before. You want to be able to



call someone and ask for help. You ought to inquire about how often new releases are available and how they're delivered. How do you find out what's in the new releases? You also want to know if something has been fixed. There ought to be some communication between you and the vendor about when things are fixed. You ought to be able to call and ask whether you get new hardware or whether you should set this up on your hardware. There's new hardware coming out all the time.

If it's not obvious yet, new regulations are coming about all the time. You ought to look for a package that will guarantee that new regulations will be complied with. If they revise XXX again, you want to be able to comply with that. If you did actually decide to go out and look for a valuation system or any other actuarial software, one thing some people don't realize is their purchasing departments may require a request for proposal (RFP). You ought to keep that in mind. You ought to request a demonstration of the system. That's pretty obvious. Something that's not so obvious that most vendors will do is if you send them your policy forms, they'll send you back some sample calculations, and show you what kind of detail you can get to audit your policies.

**MR. SULEK:** How rigorous should a company prudently be in terms of planning out the testing process before it makes its purchase? I mean it would seem to me that you'd get a good story from the company, but it might not end up doing all of the things you want it to do.

**MR. MORRIS:** Another thing you could look for from a vendor is a trial licensing period. When would you license a product with a 60- or a 90-day checkout period, which the company could be pretty rigorous about? During that 60–90-days, the company could code up and test their policies and verify that the system actually does do what the marketing literature says it does.

**MR. SULEK:** Do you find that sources of earnings is something smaller companies use, or is that a big company phenomenon?

**MR. MORRIS:** Because of budget considerations, it's more of a big company option at this point.

**MR. SULEK:** Does anybody at a small company use source-of-earnings analysis?

**FROM THE FLOOR:** We keep threatening to.

**MR.SULEK:** Do you find it pretty helpful?

**FROM THE FLOOR:** We never implemented it fully enough to be able to get reliable results. We use it, but we're a subsidiary of a larger company.

**MR. DOUGLAS J. KNOWLING:** I'm the last speaker of the day. That's a good thing. As Paul said, I'm kind of picking up the slack. Rather than get into all the ins and outs of these particular issues, I'm going to hit the high points and then talk about what I see as issues that hit the small companies in particular. I thought it was interesting that this topic would appear at the Valuation Actuary Symposium. At small companies, the valuation actuary and the illustration actuary are often the same person. So that's what's taking up their time.

What are some things that might be considerations or special issues for a small company when you think about the illustration actuary? State adoptions are an issue. If you're a small regional or maybe even a one-state company, this may not have hit you until your particular state or states bring it up. Keeping track of that and keeping in contact with the state insurance departments where you operate is very important. Second, experience studies are used to test out the products you're supposed to use as initial experience from your own company. Oftentimes, with a small company, you don't have enough data to make it credible, or perhaps you don't even have experience studies. We see that a number of times when we're working with companies. We say, "Do you have some experience studies?" They say, "Well, we don't do them." The reason is that they didn't feel it'd be credible. Certainly you're allowed to use industry type data. The other thing you might consider is talking to your reinsurer to find experience that'd be useful. In terms of resources, you might work with a vendor or consultant to get an experience study package that would help you be able to do it on an ongoing basis without it being a big chore.

Another key illustration actuary issue is expense assumptions. I've done some work with companies regarding the illustration actuary in more of a review capacity. It's interesting that expenses on the majority of the situations came up to be the primary concern. Since generally recognized expense table (GRET) is the average you would expect, maybe half the companies use it, but it seemed like all the companies I talked to ended up using the GRET. I don't know how the numbers worked out there. There's a lot of discretion in how expenses are allocated, so if you look at fully allocated versus marginal versus GRET, you might see some different results. You'd really want to work closely with the accounting area that does the expense studies. You'd want to work closely with them to understand how the allocations work and how that might fit into the illustration actuary work.

Rod showed that one of the big factors in the illustration actuary work was doing the testing itself. I guess I would suggest that the actual testing is what I would call a core capability. If you're able to price products, you can do the testing, but it's more a matter of the second area, which is resources. If you're a one-person or a two-person shop, you might have a lot of other things to do. How are you going to find the time to do this year in and year out? Some of that depends on how close your products are to passing or failing, as well as how broad your product portfolio is. You might want to consider trimming out some products that don't really do much for you. Marketing departments often want to have every product. Maybe you need to, particularly as a small company, focus on the products that do best for you. That would help cut out some of the resources of doing the work.

I mentioned earlier that the work I had done had been more in a review capacity. It wasn't so much that people didn't think they could do the work. They thought that perhaps it'd be a good idea to have another set of eyes take a look at it. If you're in a small company situation, you might not have someone next door or down the hall to come help you out, and that's where a consultant can help out. Even within the small company community, there could perhaps be some backup there as well. Having the peer review capabilities and a sounding board would really help out in this area. Of course, if you have problems passing, you need to adjust your products. There's also the issue of communication with management, in terms of why we're adjusting their products and why they don't pass that type of thing.

I would also like to discuss changes to the actuarial opinion memorandum as well as C-3 risk-based capital. When I sat in on Sessions 1 and 2, I thought they said everything I needed to say. What I'm going to do is just talk about the high points of both of these topics. What this really boils down to is, are you going to do cash-flow testing or not? What will be the impact on you because of that?

Let's go over the proposed changes to the actuarial opinion memorandum regulation. This is the latest and greatest as of some time in late August 1999. If things have changed since then, that's a possibility. The first is an inclusion of an executive summary, and that's more a matter of getting it in the memorandum itself and keeping it updated on an ongoing basis. I'd say some of the bigger issues for the small companies are this whole thing with Section 7, an additional requirement that you could certify that the reserves could pass a gross premium valuation. Do you have the capability to do that? They are suggesting using best-estimate assumptions and the provisions for adverse deviation. That may be the stick, but there's a carrot out there that says if you do a Section 8 opinion, you might be able to do a state of domicile filing instead of a state of filing filing. That may provide some impetus to want to do Section 8 type filings. There are some changes in terms of how you're exempt from Section 8. As for company size groupings, as I understand it, A and B are going to be combined into one group. The exemption ratios are also changing. They are more liability based, as opposed to asset based, in terms of products that you have.

Let's discuss the revision to the C-3 risk-based capital (RBC). As of now, it has a December 31, 2000, effective date. I heard that there may be some flexibility, and that it might get pushed back. At this point, it sounds reasonably definite that it will be in effect at the end of 2000. The revision breaks down the C-3 risk-based capital (RBC) component into the sum of three amounts. For cash-flow tested products, it's the 95th percentile or the present value (PV) of surplus. We'll get into the details on that in a little bit. Other products use the existing factors. Finally, for callable assets that are backing the untested products, you need to take 50% of the difference between the book value and the call price. Furthermore, when you add all those pieces up, the C-3 is limited to the C-3 you would get on the existing factor bases, which would be no less than half of what you'd get and no more than double.

For those of you who don't currently do cash-flow testing, it's only required on products if they're required for the appointed actuary opinion. If you meet the Section 7 exemptions, you're further exempted for the RBC requirements. On top of that, even if you're not exempted, and you do cash-flow testing, they're only required on annuities and single premium life at this point. I would suggest that at some point that may be expanded, but that's where it is right now. In addition to that, the assumptions that are used are the same as those used in the asset adequacy analysis. There's a lot of leverage available on your existing cash-flow testing models, to the extent you have these models. At one point there was discussion of using some sort of benchmark assumptions, which certainly would have added a distraction and a lot of work for all companies, not just small companies.

We talked about this 95th percentile of present value (PV) of surplus. What does that really mean? The task force has set up the scenario generator that picks the 50 that produced the highest volatility. If we thought of the scenarios that produced the top 25% worst results, that's the scenarios you're going to work off. You should expect pretty bad results out of these. Then you project your assets and liabilities out over those 50 scenarios. For each scenario, you pick the minimum discounted statutory surplus for each scenario, and that's the result of that scenario. It isn't truly the 95th percentile. There's some weighting that goes on so that you take the fifth worst through the 17th worst scenario and do a weighted average on those on kind of a normalized weighting curve to finally get your answer.

Aggregation is allowed across lines of business on which you do the testing. You can add the results up either before you do the discounting or after you do the discounting. I'm not really sure what the impact is of doing it before or after. That's probably more just a matter of convenience for the individual.

How many do Section 8 opinions? How many do Section 7 opinions? There is a pretty good number that currently don't do cash-flow testing. For those that do Section 8 opinions, cash-flow testing might not be performed in all lines, but probably is on annuities and single premium life. Is that generally true? Certainly these two items, the changes to the Actuarial Opinion and Memorandum Regulation (AOMR) and the RBC requirements, bring up the question of whether we should do a Section 7 or a Section 8 opinion? Section 7's going to require a gross premium valuation. Brett mentioned your valuation system doing that for you. That would make the gross premium valuation fairly easy to do. It's always still more work to do these things.

You're now in the land of creating a model. How much more work is it to then take that and actually do cash-flow testing models and do a Section 8 opinion? I guess that's a consideration you might have. I would put a question mark next to reducing risk-based capital. It may be conceivable. You do the three pieces of the C-3 RBC, and then you compare the total, such that it's no less than half and no more than twice what you would have gotten. If you can reduce your risk-based capital through doing the cash-flow testing, that may be a consideration you might want to take up. It obviously depends on how well capitalized your company is and how sensitive management might be to that issue.

I gave a presentation about four years ago at the Valuation Actuary Symposium about taking cash-flow testing models to the next step. I think that a lot of companies have done that. There seems to be more and more movement towards requiring everyone to do cash-flow testing. Rather than viewing it as a lot of work to do, maybe approach it from what good information can I get out of this for management? Without that, it's just a tedious regulatory task you have to go through. If you create the models and then use them for information, it allows you to do various kinds of asset/liability analysis in terms of strategies on both the asset and the liability side. You could do risk analysis on your products and, of course, use the models for budgeting and planning to where you might find that it's quite worth it.

What are the key requirements if you're not currently doing cash-flow testing? What do you need to consider? Whether it's cash-flow testing or appraisals, getting good data that we're happy with is often the hardest and longest part of every job we do. It's not always easy to get all the data you want or the data in the right format. There's a lot of data required to do cash-flow testing. You've got to get reliable in-force, liability statistics, and you need to get it on an automated basis. If you're short on resources, you want to be able to do this quickly. You want to be able to get your asset information down as well. Finally, you need to be able to do some level of experience studies. This depends on how much experience you have out there. Is it credible? You'd want to be able to take the model and dynamically validate against your recent experience to make sure that, even if you made some judgment in your assumptions, it reasonably produces your recent history.

Along with the data issue is getting modeling and projection systems. I call it modeling and projection systems in that they're not necessarily the same system. When I speak of modeling systems I'm talking

about the ability to take that in-force data and easily get it boiled down into a model. That's often a tough, up-front task, but if you have a system that can efficiently do that modeling for you year in and year out, it makes it easier to get your model set up and go forward with the process on an annual basis. Of course, you need a projection system to do that, and there are a number of packages out there. You might also consider systems to help you with your experience studies.

The last item is staffing. You need warm bodies to do the work, and it may sound easy enough, but again, if you're a one-or two-person shop, there might not be time to do this, so you have to consider both internal resources and external resources. I'd suggest that, over the long term, if you were going to do this on an annual basis, you'd probably want to have internal resources. You need to have ownership of your own models. You need to be able to understand the models and make good use of the information. You need to be able to answer questions as they come up. If it's an internal process, you might be able to do that more easily. That's not to say external sources aren't helpful to do the work. I think you'd find it helpful to set up the models and help review the models on a regular basis. Plus, you need to have training. If you haven't done this before, you need to find out how to use the system. What do I need to think about beyond that? How do I analyze the results? That's where peer review or someone to bounce ideas off of could be very helpful.

Other regulatory proposals. This was the area I was most concerned about, but since XXX wasn't there, I was able to look it up on the Internet, and that helped. We heard a lot of good information at other sessions. Even if you're doing a Section 7 opinion now, somewhere down the road you're probably going to have to do a more in-depth type modeling exercise. Because of the unified valuation system they're talking about, in which you're going to do a dynamic financial analysis, you're probably going to have to be able to do this kind of work. The base formula reserves, as they're suggesting, will stay the same, but as far as that three-pieced approach to do the viability and the solvency, you're probably looking at needing to do some sort of cash-flow testing.

Another regulatory proposal is the CSO 2000. I heard other people refer to CSO 2001 or CSO 2005. I have no idea what it's going to be called. What I see coming out of that is probably a rush to develop new products. I remember when we had to put in 1980 CSO, and everybody was busy

repricing products. That will be coming around the corner, and that will impact many people in the audience as well because I'm sure they have those duties at their companies as well. At this point I'm going to go ahead and open the discussion up to any questions.

**FROM THE FLOOR:** How close are we to an annuity illustration law we'll have to deal with?

**MR. KNOWLING:** My understanding is that you're not going to see an annuity illustration law like you see on the life side. It's more of a disclosure kind of law. It isn't going to be this big actuarial exercise; it's more of a disclosure issue and a product delivery type issue.

**MR. SULEK:** Doug, you mentioned the words, *peer review* twice. Let me tell you an experience I had with peer review. As chief and only actuary of a small company, I became nervous, and I said, it'd be nice to have a peer review. We did it and I received good marks. I showed it to my president, and everybody was happy. Now I'm in a situation where my cash-flow testing is being converted from one major vendor to another major vendor. I'm finding mistakes in my cash-flow testing that were not caught in the peer review process. Was it a bad process or is peer review really reliable in finding problems in these things, or do we need to do a more exhaustive review of some sort? What's the answer to my problem there? I did get good results.

**MR. KNOWLING:** My company's chief peer review officer is in the room, so I have to be very judicious in my comments. Peer review is a regular thing that we do at our firm. Every project we do is peer reviewed, and the concept is that the peer reviewer isn't there to catch all the errors. You're supposed to check it yourself before the peer reviewer comes in. The peer reviewer is there throughout the whole process, while you're developing things, to help you make the right decisions along the way. It's not the be-all end-all, but it certainly helps reduce a lot of errors and issues that might come up, and it will help you make decisions along the way to help you out. Certainly there are different levels of rigor that you might have within the peer review process. I wouldn't think of peer review as an audit so much as kind of a high-level review and verification that things were checked at the appropriate time.



**FROM THE FLOOR:** You talked about a Section 8 opinion, about using a state of domicile versus a state of filing. I'm really confused. Are there many issues coming up about what you can do? I assume, from a regulatory standpoint, that you have to go by state of filing, but I've heard other people say they use state of domicile.

**MR. KNOWLING:** The question is, what's the issue with state of domicile versus state of filing? Is it your understanding that state of filing is what is required?

**FROM THE FLOOR:** I believe that in another session a regulator said that that was true.

**MR. KNOWLING:** This is a proposal. It's not set in stone yet. What's being suggested is that, if you do a Section 8 opinion, the commissioner of each state would have the discretion of allowing you to do a state of domicile filing, and there's a different sort of alternative. Can you meet the codification reserves or can you show that you meet some minimum level of reserves? With codification coming through, some of those issues might tend to go away to a certain extent, but there's always going to be differences from state to state.

**MR. KNOWLING:** Are you saying you could actually say your reserves meet your state of domicile requirements, and the other state departments could either accept or reject that? Is that how that would work?

**MR. KNOWLING:** That's my understanding, but the requirements could vary from state to state.

**MR. SULEK:** I heard in the other session that it wouldn't be an automatic thing; you'd perhaps have to petition the individual states for the privilege of doing that sort of thing.

**MR. KNOWLING:** On a company-by-company basis, the commissioners could still require you to do a state of filing filing, even if they let others do a state of domicile filing.

**FROM THE FLOOR:** As for the cash-flow tested C-3 risk-based capital requirements, do you see any safe harbors available or are there going to be any size requirements on that?

**MR. KNOWLING:** I suppose there would be if your C-3 was twice the size. Other than that, it's not clear to me.

**FROM THE FLOOR:** I have a question on the December 31, 1998 CARVM. Is that subject to group annuities as well as individual? I know it's kind of out of left field. I was going to ask that question in the last session. I thought I'd ask it now.

**MR. SULEK:** We could get the answer from the audience as well as from the panel.

**MR. KNOWING:** I would say I'm not sure I have the definitive answer that applies to all companies. Is there anybody in the audience who wants to address that?

**FROM THE FLOOR:** I certainly think it does. I don't believe it says individual. I don't have it in front of me, but I think it says anyone subject to CARVM. Generally speaking, the group ones have some clauses that make it less onerous, but it does seem to apply.

**MR. SULEK:** Doug, I wanted to ask somebody this question for a long time, and you left yourself open to it. Cash-flow testing doesn't have to be the method of asset/liability analysis. Can you give us some other good choices for lines that might be appropriate?

**MR. KNOWLING:** Generally speaking, people think of asset adequacy analysis and cash-flow testing as being synonymous. I fall into that trap myself. Of course, there are other methods. Interest-sensitive products would include deferred annuities, single premium life products, and universal life. You would want to do cash-flow testing because of the interest-sensitive nature.

Some people would argue that traditional products, like term insurance, aren't particularly interest sensitive. What else could you do? Doing some sort of a gross premium valuation would be an appropriate test with an eye towards the assets that are backing them. I've seen people do what-if analysis with the market value of assets if interest rates were to jump 3% or 5%, right at the point of

valuation. They would compare that to the cash value and kind of do a pseudo run-on-the-bank kind of analysis to see if there is going to be any money there to fund it. An area I'm not as familiar with would be the Accident and Health (A&H) side. They'll do claim trending analysis and so forth.

**MR. SULEK:** Would a what-if analysis work for a variable annuity without a lot of bells and whistles.

**MR. KNOWLING:** There's not as much with the variable annuity. I mean you're passing the risk on.

**MR. SULEK:** Yeah. What if it's their risk?

**MR. KNOWLING:** You still might want to do some analysis there. We've seen this with variable products where, even though you're passing the risk on, the profit comes from how big the fund grows. If you're taking basis points off the fund value, you'd want to make sure that if returns were particularly poor, you'd still be able to recoup losses. However when you think about cash-flow testing, it's on business that's already in-force. You're not considering acquisition costs in there. It may not be as big an issue.

**FROM THE FLOOR:** Guideline 34 said variable annuities should use 100% of the 1994 Group Annuity Mortality Table. I'm wondering if there is any projection for mortality improvement as well?

**MR. SULEK:** The question is about the bullet that says there's a minimum requirement for . . .

**FROM THE FLOOR:** Guideline 34.

**MR. CHAKOSKY:** Guideline 34 does not include the projection scale.

**MR. SULEK:** That limit does not include the projection scale.

**FROM THE FLOOR:** What table should be used for fixed annuities? For instance, Guideline 34 has a set table to calculate death benefits, but is there any requirement to use that table for fixed annuities?

Should you use the 1980 CSO? In the general session, they were talking about using 1980 CSO for a tax basis.

**MR. CHAKOSKY:** The question was, what tables do you use for your annuity valuation? The answer is, under Guideline 33 it depends on what kind of benefit we're looking at.

**FROM THE FLOOR:** Death benefits.

**MR. CHAKOSKY:** Death benefits. Then you would use 1980 CSO or a death benefit type qx.

**FROM THE FLOOR:** Does it matter? You're going to use the one from Guideline 34 for your variable, which is specified in the regulation, but if you're fixed, you could use that or the 1980 CSO? It

**MR. CHAKOSKY:** For Actuarial Guideline 33 for death benefits, you're using a mortality table death benefit, not an annuity table death benefit qx.

It's pretty clear in Actuarial Guideline 33. In Guideline 34, they specify the table, and it is an annuity mortality table, but then it's supposedly grossed off to make up the difference.

**FROM THE FLOOR:** Once 26 states adopt Guideline 34, then you can use the table that's in Guideline 34 for a tax basis, too?

**MR. CHAKOSKY:** Yes. You'd have a three-year phase-in if you wanted to wait.

**MR. SULEK:** Chuck, are reinsurers a solution to Regulation XXX?

**MR. CHAKOSKY:** No. You'd probably get a cancellation or an insolvency notice from your reinsurer.

**MR. SULEK:** They won't lose them offshore for you?

**MR. CHAKOSKY:** Some are doing that. There is a good bit of offshore work, and there's some offshore work that is coming back to you.

**FROM THE FLOOR:** On that subject, you have to look at your respective mortality on the direct side. Can you use YRT rates from the reinsurer to look at the X factor?

**MR. CHAKOSKY:** The question is, what do you look at when you set your X factors? The answer is really not defined yet because we are working on an ASOP. It's similar to the illustration actuary. It is best to look at your own company experience for the same product. The third best source is industry experience. The final best source is your own judgment. The direct answer to your question is, if you have a reinsurer he might have access to data that are more credible than yours, and they may be willing to share that data with you as to how to set your X factor. Keep in mind that there is a risk that you'll have to change your X factor in the future. You might want to say your X factor is at a level of conservatism. There are Monte Carlo techniques to test that level. How many standard deviations is it above the norm? The ASOP is likely to suggest distributions based on age; it will either be normal or Poisson distributions. I think you'll find that ASOP will be a good bit of help when it comes out.

**MR. SULEK:** Would it be correct to say that it's the mortality itself and not the YRT charges that they're making that would be the basis of setting the X factor?

**MR. SULEK:** You'd ask what mortality do you expect? You wouldn't ask what YRT ratings there are on a charge.

**MR. CHAKOSKY:** The XXX regulation does include specific reference to the reinsurance piece, and it's your whole block you get to look at. There is reinsurance involved. You should take that into account. If the reinsurer has data that it is willing to share with you, you can take those data into account.

**FROM THE FLOOR:** On the cash-flow tested C-3 risk-based capital, is the discounted minimum statutory surplus the worst scenario of the 50.

**MR. KNOWLING:** Yes, for each scenario, you project it out, and you look at all different year-ends within your projection. In one scenario, you look at the worst present value in surplus. That is your score or ranking for that scenario. You line up all your scenarios, and you kind of pick the fifth worst through the 17th worst and apply weighting factors to it. Basically, the concept is how much more money would I have to dump into the projection so that I don't have a negative surplus at some point in the projection? By the way, the discount rate is 105% of the one-year spot rates or something like that. If I put money at the start of the projection, and it earned an after-tax yield, would it be enough to cover any shortfalls I'd have throughout the scenario?

CHART 1

Issues That Impact Work in 1999- 2000

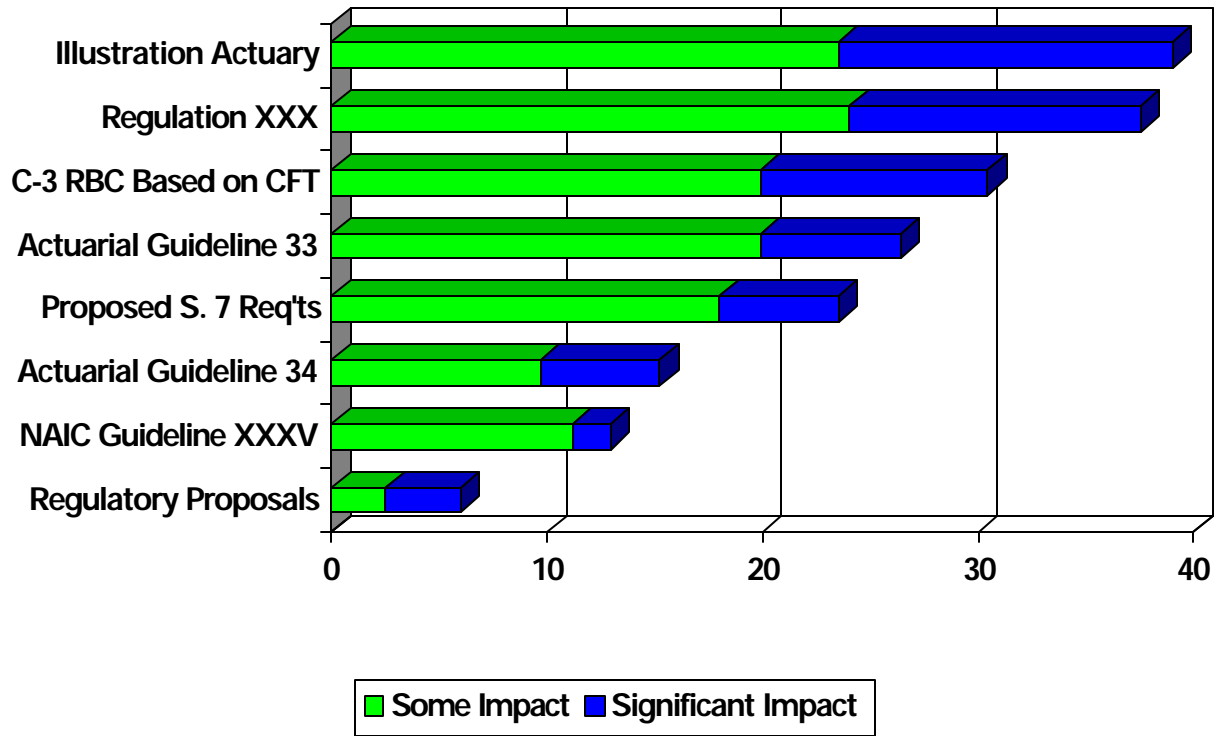
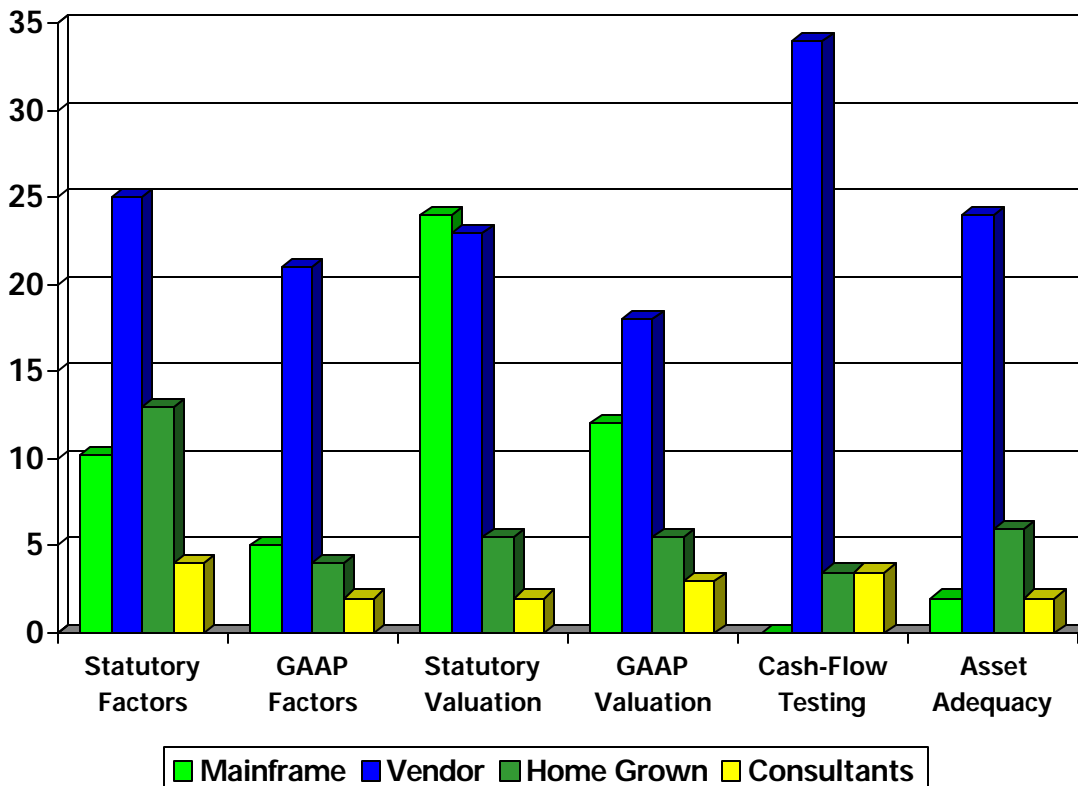
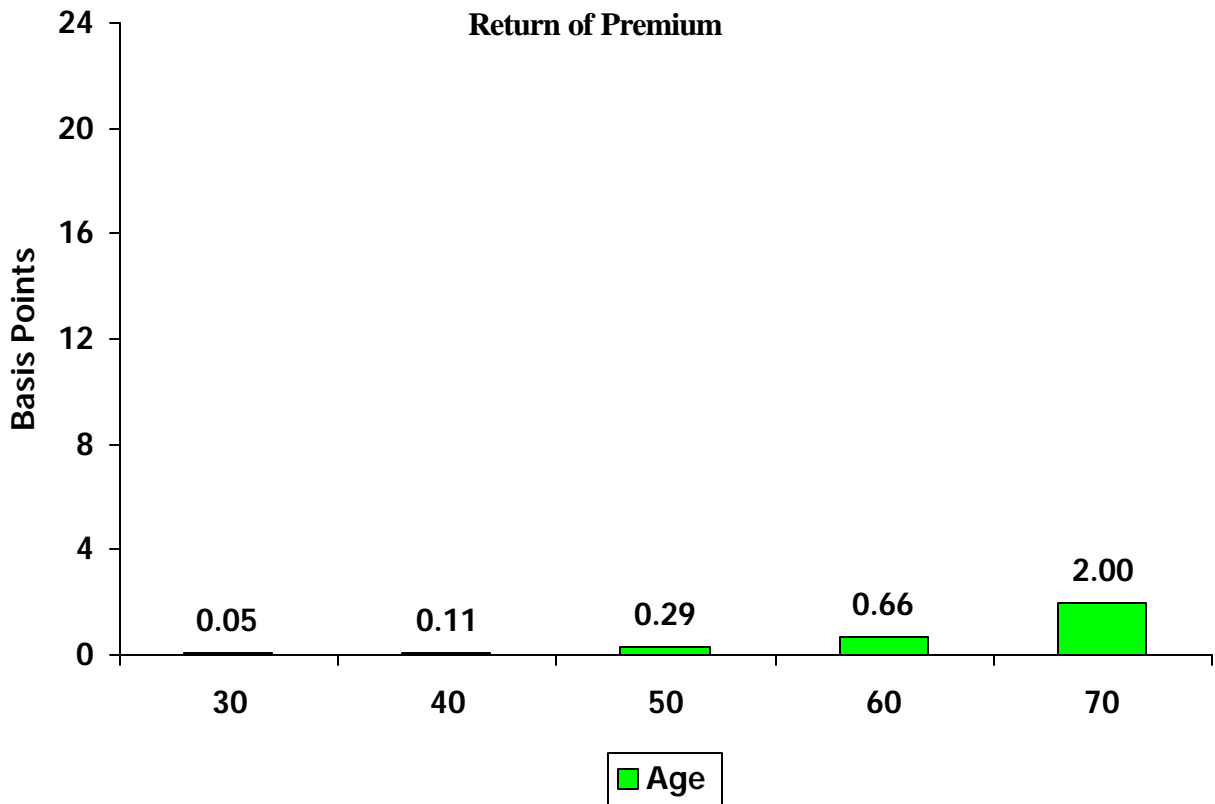


CHART 2

Types of Systems Used

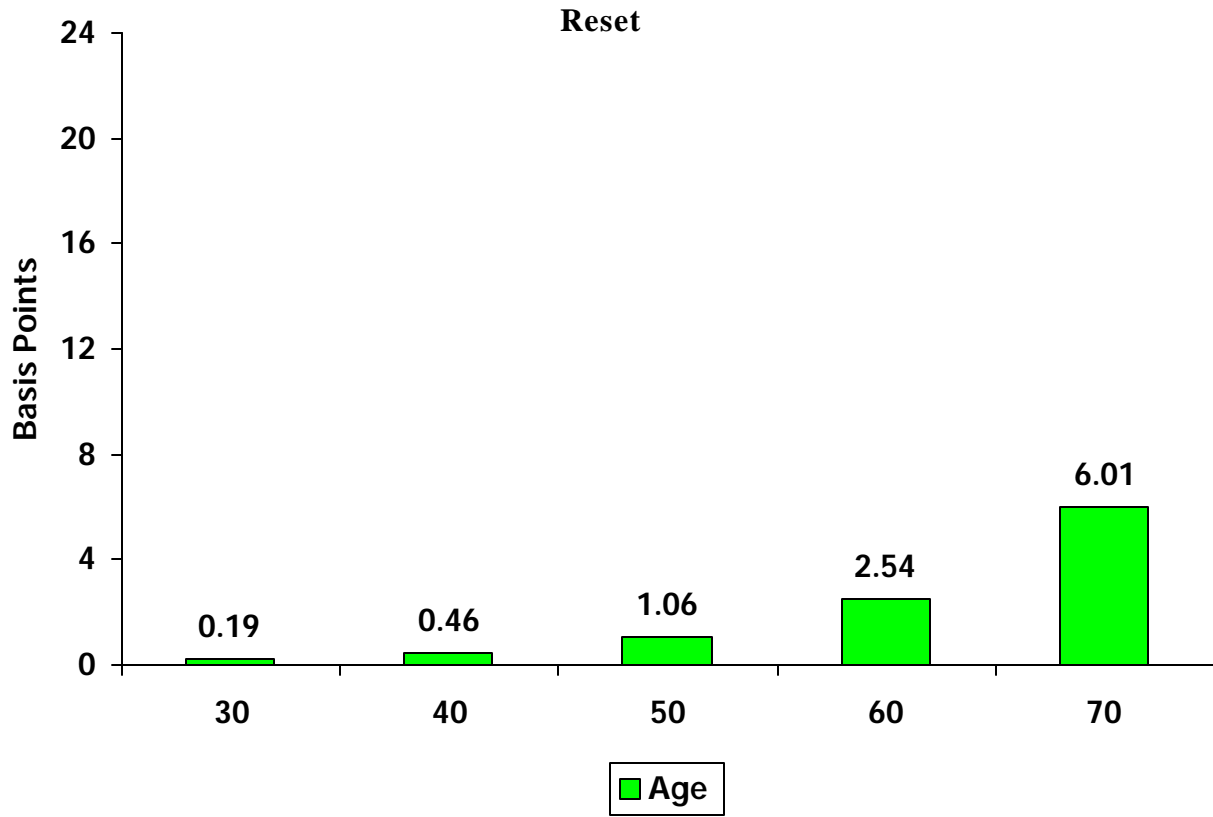


**CHART 3**  
**GAAP PV MGDB**  
**(PV as BP of AV)**

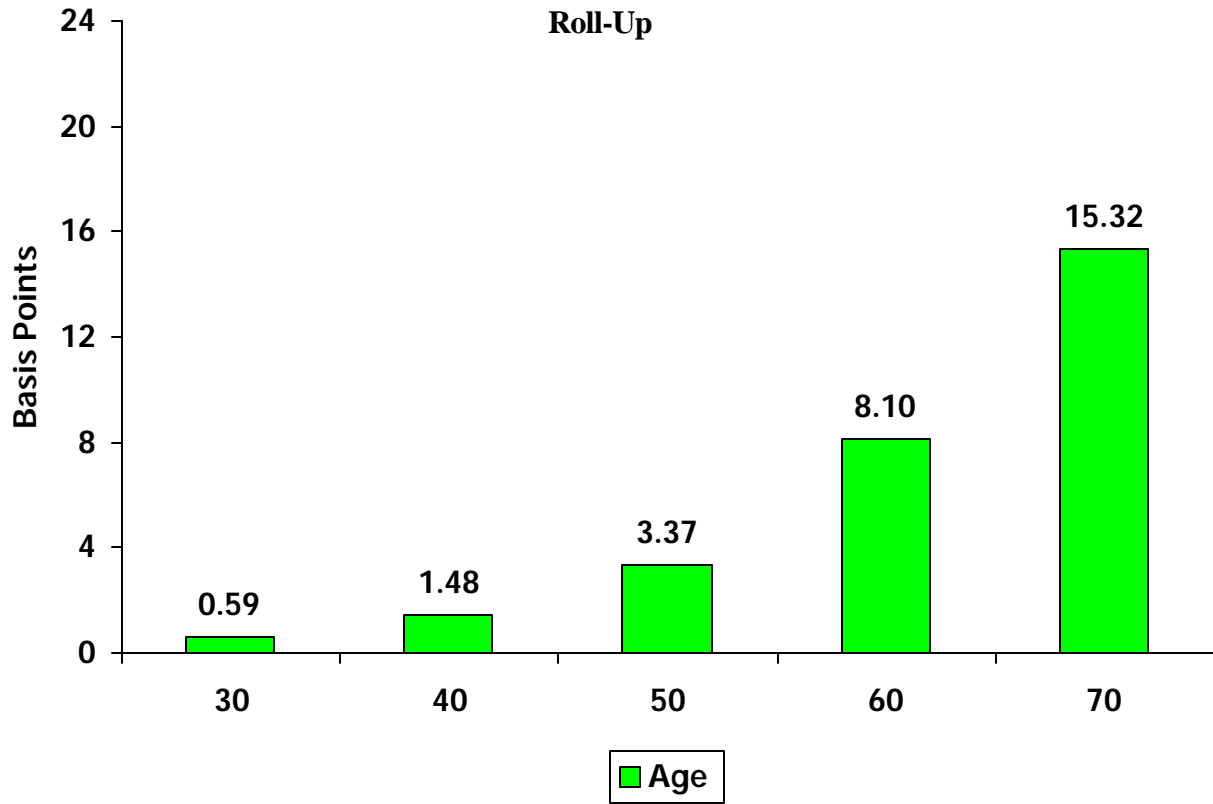




**CHART 4**  
**GAAP PV MGDB**  
**(PV as BP of AV)**



**CHART 5**  
**GAAP PV MGDB**  
**(PV as BP of AV)**



**CHART 6**  
**GAAP PV MGDB**  
**(PV as BP of AV)**

