

**1994 VALUATION ACTUARY
SYMPOSIUM PROCEEDINGS**

SESSION 11

Small Company Issues

Robert H. Dreyer

Wayne D. Butz

David A. Ricci

SMALL COMPANY ISSUES

MR. ROBERT H. DREYER: I am senior vice president and chief actuary of Erie Family Life Insurance Company, a member of the Erie Insurance Group in Erie, Pennsylvania. I also serve as the appointed actuary for my company and Council Chairperson of the Society's Smaller Insurance Company Section; hence my role as moderator. Like the panelists, I am both a Fellow of the Society and a Member of the Academy.

Our first speaker is Wayne Butz, executive vice president, chief operating officer, chief actuary, and appointed actuary for Harleysville Life Insurance Company, in Harleysville, Pennsylvania. Wayne served on the organizing committee of the Smaller Insurance Company Section, and was elected to serve as a member of its first Council. Because of his recent promotion to chief operating officer, he chose not to run for reelection and will be missed. In performing his cash-flow testing at Harleysville, he projected assets and liabilities independently, and his remarks will describe the process used to develop the appropriate interrelationships of the two projections.

Our final speaker is Dave Ricci, manager of financial services for TransAmerican Reinsurance in Charlotte, North Carolina. Dave is valuation actuary for the reinsurance division of TransAmerican, and has held similar corporate positions at Horace Mann and Time Insurance Companies. Small companies form a large percentage of the clientele at TransAmerican, and as financial services manager, he is responsible for reflecting the balance sheet adequacy of his customers in his own cash-flow calculations. Dave is here to discuss the pros and cons of outsourcing.

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MR. WAYNE D. BUTZ: I'm going to share with you my company's approach to cash-flow testing. Before I start, I'd like to give you some background on my company. I assume most of you haven't heard of Harleysville. Harleysville Life is a small stock life company in Pennsylvania. It's a wholly owned subsidiary of Harleysville Mutual, a property and casualty insurer. We distribute almost exclusively through independent property and casualty agents. The life company has \$21 million of direct earned premium versus \$800 million for the parent company. We market traditional whole life and term products, universal life, deferred annuities, immediate annuities, group life and group disability income. We also have a small in-force block of individual disability income.

Distribution of earned premium by product is shown in Table 1. As you can see, universal life and deferred annuity premium comprise almost two thirds of our direct premiums. So the majority of our business is interest sensitive.

In Table 2 you can see similarly the distribution of reserves. Universal life and deferred annuities amount to almost three quarters of our policy reserves. Note also that we have \$22 million of immediate annuity reserves, which does provide some hedge against interest rate movement along with the deferred annuity product.

At year-end 1993, Harleysville assets totaled \$175 million, which made us a Category C company. Provided other guidelines are met, we could file every third year. However, we are required to file every year, since our annuity reserves are more than 50% of our assets. We're currently licensed in 24 states. The first actuarial opinion based on asset adequacy was filed for the year 1992. Only three states required it that year. But we did decide to file the opinion, the same opinion, in all states. Four additional states were added in 1993.

TABLE 1
1993 Direct Earned Premium (\$1,000)

Traditional Life	\$3,558	17%
Universal Life	6,985	32
Deferred Annuity	6,796	32
Immediate Annuity	852	4
Group Life	2,163	10
Group Disability Income	1,048	5
Individual Disability Income	32	-
TOTAL	\$21,434	

TABLE 2
December 31, 1993 Policy Reserves (\$1,000)

Traditional Life	\$12,317	10%
Universal Life	31,396	26
Deferred Annuity	55,051	46
Immediate Annuity	21,792	18
Group Life	126	-
Group Disability Income	85	-
Individual Disability Income	127	-
TOTAL	\$120,894	

Some time in 1992, we had to make a decision on how we were going to get our asset/liability work done. And there were two obvious choices. One was to spend money to buy external expertise, and the second approach was to use internal resources to develop our own model. As a small company neither approach is really very palatable. More or less out of the blue, a third approach developed that was really a combination of the first two approaches. This was to independently generate the asset cash flows, and the liability cash flows, and then merge the results using a spreadsheet.

Because of the relationship that our parent company has with its investment company, the investment company was willing to complete asset cash flows under the required seven scenarios. The people there already had models and experience doing this, but only on the asset side. Harleysville already had a traditional liability model in place. With a few modifications we made this liability model interest sensitive, and completed liability cash flows for the seven scenarios. A Lotus spreadsheet was developed, which consolidated the cash flows and generated discounted statutory gains as the measurement of success.

Table 3 shows our asset mix at the end of 1993. As you can see mortgage-backed securities and collateralized mortgage obligations (CMOs) comprise about 22% of our portfolio. Fortunately our investment company is expert in the field of projecting cash flows from this type of asset. The company had no real estate or mortgages or stock. And 99% of the bonds are investment grade. Assets were picked, which equaled in book value the total liabilities being tested. A total of 69 individual assets were chosen, and cash flows were projected on a seriatim basis.

Table 4 shows the tested liabilities at year-end 1993. And you can see 100% of the universal life and annuity reserves were tested. In addition we tested the immediate annuities and the traditional life reserves.

TABLE 3
12/31/93 Invested Assets (\$1,000)

Government Bonds	\$27,734	20%
Mortgage-Backed	2,096	2
CMOs	27,762	20
Corporate Bonds	72,613	53
Cash	4,094	3
Policy Loans	2,911	2
TOTAL	\$137,210	

TABLE 4
12/31/93 Liabilities (\$1,000)

Tested:	
Traditional Life	\$11,950
Universal Life	31,396
Deferred Annuity	55,051
Immediate Annuity	21,792
TOTAL	\$120,189

The untested liabilities are shown in Table 5 and consist mainly of the separate account business, which is the parent company's pension plan. The life company has no risk of any kind on this business, so it was not tested. Also untested was the group life and disability income business. This business is not placing any strain on surplus. It's relatively profitable, the contracts can be canceled and the premiums can be changed annually without limit. The remaining untested liabilities were either very small or had very short tails.

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The tested liabilities were modeled using ten plans and run through our enhanced liability model to create cash flows under the seven required scenarios. The company experience was used for mortality, base lapse, and expense assumptions. Base lapse rates were adjusted based on changes in interest rates using an industry formula. Credited rates were determined without the benefit of knowing the earned rate from the asset model. This was done by estimating the earned rate under the various scenarios. Model results were verified by comparing to recent years' historical data. By trending actual premiums from recent years' experience, comfort was achieved with the model premium results. Since actual death claims fluctuate from year to year, model claim results were compared to the average of recent years' experience. Surrenders, commissions, and expenses were trended, and the model verified similarly to the premium.

As I mentioned earlier, a Lotus spreadsheet was created to consolidate the two sets of cash flows, which accomplished the following. It accepted as input asset cash flows, liability cash flows, and after-tax statutory gains from the liability model. It reduced our asset cash flows by 2% for default risk. The asset cash flows that were completed by the investment company were not adjusted for default risk. We felt that a 2% adjustment was conservative, since 99% of our bonds are investment grade. It reinvested positive net cash flows. We were limited here as to the degree of sophistication we could use. We simply invested in ten-year corporates, and they were purchased at the current rate at whatever scenario we were in.

The spreadsheet loaned money for negative net cash flows. Again we were limited, as we didn't want to get into selling assets. It calculated adjusted net statutory gains based on new investment income and any resulting federal income tax adjustments. The statutory net gains that were fed in from the liability model included federal income taxes. Because we were replacing the investment income, which was coming from the asset side, we had to also adjust federal income taxes.

TABLE 5
12/31/93 Liabilities (\$1,000)

Untested:	
Traditional Life	\$366
Group Life	126
Group Disability Income	85
Individual Disability Income	127
Exhibit 10	20
Exhibit 11 Claim Reserves	317
Separate Account	33,898
Net Deferred & Uncollected Premiums	1,057
Total Liabilities (Tested and Untested)	\$156,185

And last, the spreadsheet discounted the adjusted net statutory gains. As I mentioned earlier, this was the number that determined the success or failure of a scenario. The results of both years have been acceptable, and no qualified opinion was necessary. The starting interest rates were slightly more than 100 basis points lower in the 1993 study than in the 1992 study. Results for 1993 were worse than 1992 for the three down interest scenarios. This was caused by narrow interest spreads, because credited interest rates were limited on the down side by contract guarantees. The general results for the up scenarios stayed about the same or improved.

The advantages of the described approach were certainly the low cost. Because of our relationship, the investment company didn't charge us anything for projecting our asset cash flows. There was a limited amount of time involved on our part to modify our liability model. Another advantage was simplicity. I think it was a little bit easier to analyze what was happening with the model, and the different results that we got from the various scenarios.

There were disadvantages to the approach. First we were certainly limited by the number of scenarios that we could test because of the manual nature of the approach. I think for asset adequacy testing the seven scenarios are probably appropriate. For some other uses, we would like to run more scenarios. Certainly the second disadvantage is that it cannot be used to actively manage the asset portfolio. We were very limited with the investment approach that was taken. As I said, we assumed we would invest in ten-year Treasuries. It would have been difficult to test various investment strategies with this approach.

Third, I had mentioned that estimation was required in the liability model regarding credited rates and yield. It would have been more accurate to determine yield directly. Because of these disadvantages we're currently looking at alternative approaches. We're looking at employing external assistance that will use an interactive approach. We would like to be able to compare the results that we achieved using this spreadsheet approach to a fully interactive method, just to see whether it is a realistic approach. I feel it is, and I would like to see that verified. We would like to more actively manage the asset portfolio. And at some point we would like to have a pricing capability, which also would be difficult under this approach. In summary I feel comfortable with the results achieved under the described approach for asset adequacy purposes. But for the reasons stated I think a more sophisticated system is desired. I would be interested in hearing from any of you who may have used a similar approach to this. That ends my formal comments. But if you have any questions I'd be happy to take them now.

MR. WILLIAM B. DANDY: We're a similar size to your company, and this was our first shot at cash-flow testing. We used a previous study as a basis and then modeled our 1993 new business separately from that. We followed almost all the things you did essentially, including putting the cash flow into ten-year Treasuries. My question is, how confident were you in using your existing lapse rates, termination rates, surrenders, and things of that nature? I was a little scared using ours.

MR. BUTZ: As a base lapse rate I felt comfortable. But in order to make the rates intrasensitive I used a formula I think that we probably have all seen, where you look at the difference between the market rate and the credited rate. But we don't really have our own experience as to what our lapse rates would look like under various interest scenarios.

MR. DANDY: We didn't either. We had to make some guesses as to whether they would vary on the various interest rate assumptions.

MR. BUTZ: In general I feel that the type of business in our market is probably a little less susceptible to lapses. But I didn't really assume that when I did the work. I just used a typical industry formula.

MR. PETER G. HENDEE: Did your company pass under all seven of the standard scenarios?

MR. BUTZ: Yes.

MR. HENDEE: If it had not, would you be comfortable with one failure or two?

MR. BUTZ: That's a tough question. I'd say, if you know some of those scenarios are fairly extreme, I think I'd probably be comfortable with one failure. I don't know if any companies have submitted a failure.

FROM THE FLOOR: Wayne, I don't think anyone ever submits a failure. They just figure out a way to make it succeed. Of course, it failed because there wasn't enough management prerogative or strategy in the model. So you change it a little bit; the inflexibility of say the ten-year corporate might be called into question. You might make some other assumptions.

MR. JOHN W. MCKEE III: Wayne, you described a very efficient process that worked for you. Did you learn anything from it? How did you view it? Was it a regulatory exercise, or was there other worth in your situation?

MR. BUTZ: I think the way we did it was more a regulatory exercise, because as I mentioned, you couldn't really test various investment strategies. I guess we learned a little bit about the intrasensitive nature of our asset cash flows, especially with the 22% we had in mortgage-backed securities and quite a bit in CMOs. I think it was surprising to see in some of the down scenarios how quickly some of that money came back to us. So I think we learned something there. But I think we didn't learn as much as we could from a more sophisticated approach, especially in testing future investment strategies.

MS. DONNA R. CLAIRE: Again, this is back to the last question. In terms of what is passing, what is failing? There is no one right answer. It's a good question. I have done reviews on both the regulator side, and I've done a number of peer reviews. And basically my bottom line is, it would be nice to pass the level of the scenario. That's one of my goals. Another is, don't fail all the others other than level. But basically one or two failures, if you know why they failed, are probably not going to upset that many regulators. As long as you realize why they failed, and if you're in that type situation, you would have a plan of action.

MR. BRIAN D. FORMAN: I'd just like to know if you got any response from any regulators?

MR. BUTZ: No. Have small companies received responses?

MR. DREYER: I'd just like to add one comment on the question of failure. If you should get a failure, it should point you in the direction of some changes that you could make in your operation, so you wouldn't fail that scenario again. I hardly view

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this as a failure. But I view this as a success of the cash-flow-testing process. And now a word from our sponsor. Is your surplus inadequate? Is your cash flow an unknown quantity? Then join the Smaller Insurance Company Section, and get involved in the networking that could ease some of that pain.

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MR. DAVID A. RICCI: My current position as manager of financial services at Transamerican Reinsurance puts me in contact with a lot of small company situations in which we try to exchange information for the purposes of determining the appropriate requirements for cash-flow testing. I really want to step outside of the discussion to deal more in the nature of cash-flow testing as a small company issue, not so much as an aspect of regulation but as a management tool.

If you're responsible for surplus management, then how do you deal with the eventual project that will emerge from either a member of the Board, a concerned policyholder, or even the state itself? We all know the question from the syllabus, you are the actuary of a small midwestern life insurance company, you can fill in the rest of it. But basically what I'm trying to deal with in this presentation is coming to a better concept of what the value of the company is. It is developing surplus management with a limited amount of resources. And besides we know we are all on a continuum. There may be a point very soon down the road, where you'll change from a C company to a D company, or B to a C, and cash-flow testing will be a requirement for you. And so to avoid the rush, you may want to consider a project situation that would give you more control over the entire process.

Outsourcing comes in various degrees. There's your "bargain basement" outsourcing, and then you go up to bigger dollars from there. You may want to farm the entire project out, which is the most expensive option. And the amount of control that you have reduces as you move up the scale.

The price tag in partnership deals depends upon how much expertise you can trade. "Over the shoulder" would mean basically that you expect the outside people to come in every once in a while and possibly discuss the overall parameters of the project. But basically you're in control, and basically you're calling them in just to validate the results.

What are some of the outsourcing criteria that we may want to employ? When I'm talking about the client, I mean client in the very broadest sense of the word. I mean that your vendor may actually be somebody in your own company. It may be your investment department. It may be your own department. You may be your own client. So the important thing is that you as a client maintain a control over the time and the product, because you know what you want; you had the vision of what the project is going to be, and you know what the end result should be. And when the process is done, you should feel that you now enjoy complete ownership of it. That's a minimum requirement. There might be other requirements that you may want to specify having to do with who has the rights to the software that's developed in the course of the development of the project. There are a number of other issues with regard to ongoing support after the project is done. Also, of course, you want a commitment on whoever your partner is, that the partner will follow up diligently with the regulatory authorities.

An explainable report that serves as a foundation for future projects is important. If you're going to do a cash-flow study, you'd like eventually for it to translate into something else, possibly something which would help you with investment management. Possibly something that would tell what the value added is off the balance sheet. Transform the cash-flow study from say, a strictly statutory measurement, to something that gives you an idea for the overall value of the company.

And that brings us to the last point, which is strict confidentiality. Since we are dealing with very real cash-flow issues, then control is essential.

What are some of the pros of doing some outsourcing? Some of this relates to some of the previous comments that were made. Consider consultant reputation. A recent project with a national consulting firm made regulatory approval easy. Or it may

work the other way. The regulatory authority may have had a bad experience with some of the consultants, so it may set up roadblocks.

Access to more historical data is obviously a plus. If you're dealing with a small amount of data, which is not particularly statistically significant, then one of the ways, of course, to beef up the information and make it more valid is to utilize the database of whatever partner is working on the project with you. This is probably even more essential for the asset side than it is the liability side, particularly if you have management in some of the more esoteric asset products. Special product asset now is obviously a big plus. And of course, there is a project fit. Most of the people who would be working with you on a project like this, will be used to meeting specific measurable and exact deadlines. The software vendors may have a different agenda. Unless, of course, their payment is linked to project completion or you get their attention early on before you signed the check.

Another pro will be that the process won't reinvent the wheel. Many times, if you're in the course of doing these things yourself, you may be actually going over the more developmental ground. If your partner is any good, he or she will understand what you can and you can't do, and make appropriate adjustments. There's also a certain process now that will help maximize the efficiency. And of course, since any kind of external partner should have been using the models that you want to employ, you don't have to suffer with the litany of questions, such as why doesn't the model handle these assets, or these products and getting the characteristic response from the vendor.

Of course, there are negatives involved with getting somebody involved from the outside. You tend to create a dependency. How are you eventually going to get off of that consultant fix? Eventually you want a plan. Any project like this, which has some outsourcing, eventually should also have a plan for insourcing. And you get to the point where you don't require the consultants. You didn't need them in the first

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place, you just did it because you had to do it. It's not exactly in tune with your personal needs. There's a lot of consultants out there that will be dealing with projects like this. But given your unique nature as a company, they may not necessarily have the expertise to deal with that. So it's very important at the outset to define whether you really think that a consultant is going to be able to meet the needs that you have. It may be a real project stopper.

And software may not be reusable for other applications. If you're going in for a specific cash-flow test, you may be well aware of the fact that it will do that specific project, but you cannot translate in order to do scenario testing, outside the traditional interest rate scenarios, or to do some kind of value analysis that may be next week's project.

You may be stuck with the same consultant just for the sake of continuity. After all, the consultant helped you with the prior project and now you're stuck with the consultant for the new project. And I think the bill might get a little bit larger on that kind of an instance.

Regarding overkill, you want to have simplicity in the project. If you have a consultant, you'll definitely be giving up simplicity. Now whether you get an accuracy trade off, it's hard to say.

You will get a lot of numbers that's for sure. And also, of course, it's not a good method for training. In order to do the projects so you can insource the cash-flow testing, you may want to run some kind of parallel or be sure that there are people involved in the project who are getting a good knowledge base so that eventually they can work at it on their own.

What are some of the alternatives? Networking through focus groups is one. They're invaluable. You get a number of people together, and all of you have

similar needs. You really can wipe out a lot of so-called expertise and get down to the real heart of the situation. Also, if you have the software, it may be that the tutorials and the help desk of the software will help you. It's at least worth a shot.

Instead of outsourcing from the outside of the company, you may want to outsource to other departments. This depends, of course, on the exact size of your company and how many departments you have. In many cases, you may have had a project that involved some kind of cash-flow testing prior to the regulation. Maybe somebody came in to develop an investment strategy. You may not even be aware of it. And that particular study did involve a significant amount of cash-flow testing. So you might be able to translate a lot of what was done there to this application. And finally, oftentimes it may be possible to carve out a certain small portion of the project and treat that separately, therefore, controlling the larger portion.

So in summary, you should have your project parameters well-defined. A vision of exactly what you want to do is essential, in order to save yourself a lot of trouble down the stretch when your consultant comes back and says, "Well, I didn't realize this was exactly what you were looking for. I got you this, but it will take some time and effort to do the other." Do a thorough alternative analysis, preferably as economically justifiable as you can. And obviously we can't emphasize too much to keep control.

Now I will discuss a cash-flow-testing sample. This is a work-sheet analysis of non-interest-sensitive assets using a hypothetical company. It's an example of how you would synthesize information from various areas in order to do a project. This work is a combination of software information from other departments and external consultants. The consultants that were used in this particular case were more like the Wall Street investment-banker-type consultants -- that would give you an idea for the dynamics behind certain asset types.

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Table 1, which is page ten, is basically your baseline valuation. You have the present value of gross premium. You have an estimation of your expenses and of your benefits. You have the statutory reserve, and then you compute, by the appropriate additions and subtractions, the amount of margin on a percentage and a total basis. The information that comes into this sheet is really a synthesis of about seven, eight, or nine other sheets that involve different product estimations from other departments that were combined to get cash flow from the product's perspective. There are no assets involved in this particular sheet.

Now Table 2, which is page 11, is the scenario up 50 basis points for ten years. We've taken the product cash flow, which you may see as equal on page 12 (Table 3), page 13 (Table 4), and page 14 (Table 5). They're all the same numbers down the page. We've taken the principle cash flow, which does vary by scenario. We've taken the after-tax interest cash flow, and we've taken a look at the asset cash flow. We've made certain assumptions about what we do with the surplus, and how we pay out the dividends, and we get a total cash flow. Now you can see in some of these basically that there's some significant negatives in terms of cash flow. But the criterion that was employed had to do with the amount of surplus available. And there was no problem even with the last one, which dealt with the down 50 basis points for ten years. They're still left with significant amount of surplus left over.

Now the main reason here was that there is very little interest sensitivity involved. The amount of conservatism in the reserves is huge. In this particular example there was like something like 76%. But it seems obvious at this point, that this particular class of products would pass the requirements.

Some critical assumptions had to do with the discount rate, and for the cash flow and the statutory reserve levels. The scenario development of asset assumptions was

TABLE 1

Page 10

**Cash Flow from the Liability Exhibits 8, 9, 10, 11
Excluding Policy Account, Annuities and Supplementary Contracts
Gross Premium Valuation -- 7.25 Discount Rate**

YEAR	GROSS PREMIUM	PRESENT		PRESENT		PRESENT VALUE OF BENEFITS	STATUTORY RESERVE	GROSS		ADJUSTED RESERVES
		VALUE OF PREMIUM	TOTAL EXPENSES	VALUE OF EXPENSES	TOTAL BENEFITS			PREMIUM VALUATION SURPLUS	MARGIN	
Initial	140,887		53,525		86,795					
1994	122,393	762,106	40,789	287,712	78,742	698,779	395,871	171,485	76.4%	224,385
1995	107,356	690,606	37,045	266,329	73,588	667,894	395,485	151,868	62.3%	243,617
1996	95,575	629,496	33,730	247,274	67,245	640,107	409,031	131,146	58.6%	257,885
1997	85,531	576,355	30,947	230,270	63,289	616,875	418,484	147,495	54.4%	270,990
1998	77,109	529,349	28,413	214,915	60,249	596,055	432,256	150,635	53.5%	281,621
1999	69,826	487,871	26,218	201,071	57,919	576,874	442,659	152,585	52.6%	290,074
2000	62,938	450,929	24,144	188,497	58,288	558,716	451,601	155,317	52.4%	296,284
2001	57,584	418,441	22,412	177,159	54,447	538,859	458,957	161,381	54.2%	297,577
2002	53,205	389,143	21,040	166,793	53,352	521,540	458,631	159,241	53.3%	299,190
2003	48,896	362,257	19,750	157,096	52,480	504,099	466,383	167,444	56.0%	298,939
2004	45,385	337,883	18,618	148,032	51,722	486,297	469,237	172,791	58.3%	296,447
2005	41,716	315,378	17,485	139,484	52,317	467,989	470,221	178,127	61.0%	292,095
2006	39,298	295,041	16,600	131,489	49,959	447,738	469,980	185,795	65.4%	284,186
2007	36,900	275,734	15,841	123,831	49,471	428,460	464,495	187,938	68.0%	276,557
2008	35,043	257,511	15,192	116,403	49,027	408,291	464,461	197,278	73.8%	267,183
2009	33,380	239,890	14,634	109,109	48,568	387,119	460,170	203,831	79.5%	256,339
2010	32,144	222,713	14,182	101,865	49,315	364,887	454,695	210,655	86.3%	244,039
2011	30,941	205,571	13,775	94,563	47,596	340,270	448,097	218,835	95.5%	229,262
2012	30,063	188,432	13,447	87,153	47,187	315,648	437,536	225,168	104.1%	214,570
2013	29,025	170,959	13,109	79,546	46,770	289,666	430,570	232,317	117.2%	198,253
2014	28,154	153,295	12,791	71,738	46,242	262,231	420,549	239,876	132.8%	180,674
2015	26,954	135,252	12,406	63,693	45,838	233,353	409,205	247,411	152.9%	161,794
2016	26,017	117,144	12,049	55,463	44,011	202,801	397,026	255,906	181.3%	141,120
2017	25,021	98,693	11,711	47,605	42,894	171,925	383,321	263,084	218.8%	120,237
2018	24,100	79,935	11,386	38,285	41,722	139,968	372,287	273,970	278.7%	98,318
2019	23,238	60,773	11,085	29,269	40,537	106,908	359,936	284,532	377.3%	75,404
2020	22,437	41,113	10,806	19,911	39,726	72,677	347,660	296,185	575.4%	51,475
2021	21,601	20,858	10,526	10,164	38,117	36,806	335,455	309,343	1184.7%	26,112

TABLE 2

Cash Flow from the Liability Exhibits 8, 9, 10, 11
 Excluding Policy Account, Annuities and Supplementary Contracts
 Surplus Development 7.25% Discount Rate
 Scenario: Up 50 Basis Points for 10 Years

YEAR	PRODUCT CASH FLOW	PRINC. CASH FLOW	A/T INT. CASH FLOW	ASSET CASH FLOW	SURPLUS	DIVIDENDS	TOTAL CASH FLOW	PVPROFIT/ PVPREM			ASSET DURATION
								ASSET YIELD	ASSET TURNOVER	ASSET RATE	5.96
											LIABILITY DURATION
											13.67
											10 YEAR
											ASSET ASSET TREASURY
											ASSET YIELD TURNOVER RATE
initial											
1994	1,860	47,504	16,513	64,018	0	0	65,878	395,871	6.41%	12.00%	5.79%
1995	(2,130)	49,709	17,250	66,959	18,759	0	64,829	414,244	6.40%	12.00%	6.29%
1996	(3,510)	51,524	18,006	69,529	20,333	0	66,020	429,364	6.43%	12.00%	6.79%
1997	(5,658)	53,263	18,816	72,080	25,375	0	66,421	443,860	6.45%	12.00%	7.29%
1998	(7,510)	54,842	19,672	74,514	24,762	0	67,004	457,018	6.59%	12.00%	7.79%
1999	(9,302)	56,302	20,577	76,878	26,521	0	67,577	469,180	6.71%	12.00%	8.29%
2000	(12,671)	57,655	21,484	79,139	28,853	0	66,468	480,455	6.86%	12.00%	8.79%
2001	(12,529)	58,712	22,459	81,171	30,310	0	68,642	489,268	7.02%	12.00%	9.29%
2002	(13,772)	59,396	23,304	82,700	40,567	4,231	64,697	494,967	7.30%	12.00%	9.79%
2003	(15,167)	60,466	24,404	84,870	42,347	4,850	64,852	503,880	7.41%	12.00%	10.29%
2004	(16,221)	61,203	25,432	86,635	48,730	7,942	62,472	510,026	7.63%	12.00%	10.79%
2005	(18,256)	61,819	26,361	88,179	56,957	12,021	57,903	515,157	7.87%	12.00%	10.79%
2006	(17,720)	62,290	27,274	89,563	65,303	16,202	55,641	519,081	8.08%	12.00%	10.79%
2007	(18,468)	62,531	27,973	90,484	80,342	23,914	48,103	520,923	8.28%	12.00%	10.79%
2008	(18,964)	63,079	28,834	91,913	89,881	28,684	44,264	525,658	8.47%	12.00%	10.79%
2009	(19,384)	63,396	29,532	92,928	104,041	35,915	37,629	528,297	8.65%	12.00%	10.79%
2010	(20,380)	63,653	30,147	93,800	119,664	43,918	29,503	530,441	8.81%	12.00%	10.79%
2011	(19,780)	63,815	30,740	94,556	136,030	52,331	22,445	531,795	8.96%	12.00%	10.79%
2012	(19,871)	63,795	31,179	94,974	157,551	63,462	11,642	531,625	9.10%	12.00%	10.79%
2013	(20,055)	64,026	31,727	95,754	175,826	72,843	2,855	533,553	9.24%	12.00%	10.79%
2014	(20,071)	64,083	32,160	96,243	197,519	84,040	(7,868)	534,028	9.36%	12.00%	10.79%
2015	(20,338)	64,080	32,526	96,607	220,952	96,154	(19,885)	534,003	9.48%	12.00%	10.79%
2016	(19,528)	64,030	32,882	96,912	245,319	108,764	(31,380)	533,581	9.59%	12.00%	10.79%
2017	(19,229)	63,951	33,182	97,133	272,377	122,772	(44,868)	532,926	9.69%	12.00%	10.79%
2018	(18,856)	64,080	33,582	97,662	297,364	135,652	(56,845)	534,000	9.78%	12.00%	10.79%
2019	(18,450)	64,171	33,944	98,115	324,442	149,623	(69,959)	534,755	9.88%	12.00%	10.79%
2020	(18,261)	64,312	34,310	98,622	352,212	163,938	(83,578)	535,934	9.96%	12.00%	10.79%
2021	(17,577)	64,491	34,699	99,191	380,466	178,492	(96,879)	537,429	10.04%	12.00%	10.79%

TABLE 3

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Cash Flow from the Liability Exhibits 8, 9, 10, 11
 Excluding Policy Account, Annuities and Supplementary Contracts
 Surplus Development 7.25% Discount Rate
 Scenario Pop-Up 3% Then Level

PVPROFIT/
PVPREM

19.0%

ASSET
DURATION

5.92

LIABILITY
DURATION

YEAR	PRODUCT	PRINC.	A/T	ASSET		TOTAL		10 YEAR			LIABILITY DURATION
	CASH FLOW	CASH FLOW	INT. CASH FLOW	CASH FLOW	SURPLUS	DIVIDENDS	CASH FLOW	ASSET YIELD	ASSET TURNOVER	TREASURY RATE	
Initial											13.79
1994	1,860	47,504	16,513	64,018	0	0	65,878	395,871	6.41%	12.00%	5.79%
1995	(2,130)	49,709	17,636	67,346	18,759	0	65,216	414,244	6.40%	12.00%	8.79%
1996	(3,510)	51,570	18,833	70,403	20,720	0	66,893	429,750	6.62%	12.00%	8.79%
1997	(5,658)	53,409	19,989	73,398	26,589	0	67,739	445,073	6.82%	12.00%	8.79%
1998	(7,510)	55,128	21,093	76,222	27,148	0	68,712	459,404	7.00%	12.00%	8.79%
1999	(9,302)	56,759	22,150	78,908	30,329	0	69,607	472,988	7.17%	12.00%	8.79%
2000	(12,671)	58,143	23,038	81,181	34,234	1,311	67,199	484,525	7.32%	12.00%	8.79%
2001	(12,529)	59,237	23,888	83,125	37,245	2,559	68,037	493,644	7.45%	12.00%	8.79%
2002	(13,772)	59,898	24,485	84,382	40,931	8,413	62,197	499,149	7.57%	12.00%	8.79%
2003	(15,167)	61,038	25,281	86,319	51,891	9,622	61,530	508,652	7.69%	12.00%	8.79%
2004	(16,221)	61,828	25,913	87,741	59,151	13,152	58,368	515,236	7.79%	12.00%	8.79%
2005	(18,256)	62,473	26,434	88,907	67,859	17,472	53,180	520,609	7.89%	12.00%	8.79%
2006	(17,720)	62,948	26,940	89,888	76,278	21,690	50,478	524,569	7.98%	12.00%	8.79%
2007	(18,468)	63,149	27,263	90,413	90,983	29,734	42,710	526,244	8.06%	12.00%	8.79%
2008	(18,964)	63,675	27,734	91,409	99,813	33,650	38,794	530,624	8.14%	12.00%	8.79%
2009	(19,384)	63,926	28,064	91,990	112,873	40,331	32,275	532,713	8.21%	12.00%	8.79%
2010	(20,380)	64,095	28,326	92,420	127,028	47,600	24,441	534,123	8.28%	12.00%	8.79%
2011	(19,780)	64,148	28,568	92,716	141,572	55,103	17,834	534,567	8.34%	12.00%	8.79%
2012	(19,871)	63,997	28,680	92,677	160,921	65,147	7,660	533,311	8.39%	12.00%	8.79%
2013	(20,055)	64,079	28,889	92,967	176,697	73,279	(366)	533,988	8.45%	12.00%	8.79%
2014	(20,071)	63,965	28,999	92,964	195,551	83,056	(10,164)	533,044	8.50%	12.00%	8.79%
2015	(20,338)	63,773	29,053	92,825	215,823	93,589	(21,102)	531,439	8.54%	12.00%	8.79%
2016	(19,528)	63,514	29,097	92,611	236,717	104,462	(31,380)	529,280	8.59%	12.00%	8.79%
2017	(19,229)	63,208	29,094	92,302	259,990	116,579	(43,506)	526,732	8.63%	12.00%	8.79%
2018	(18,856)	63,091	29,177	92,268	280,889	127,414	(54,002)	525,762	8.67%	12.00%	8.79%
2019	(18,450)	62,918	29,224	92,142	303,562	139,183	(65,491)	524,315	8.70%	12.00%	8.79%
2020	(18,261)	62,776	29,274	92,050	326,612	151,138	(77,349)	523,134	8.74%	12.00%	8.79%
2021	(17,577)	62,653	29,340	91,993	349,830	163,174	(88,758)	522,110	8.77%	12.00%	8.79%

TABLE 4

Cash Flow from the Liability Exhibits 8, 9, 10, 11
 Excluding Policy Account, Annuities and Supplementary Contracts
 Surplus Development 7.25 % Discount Rate
 Scenario Up 5% in 5 Years, Then Down in 5 Years

PVPROFIT/
 PVPREM
 16.3%

ASSET
 DURATION
 5.92

YEAR	PRODUCT CASH FLOW	PRINC. CASH FLOW	A/T INT. CASH FLOW	ASSET CASH FLOW	SURPLUS	DIVIDENDS	TOTAL CASH FLOW	ASSET	10 YEAR			LIABILITY DURATION 14.10
									ASSET YIELD	TREASURY TURNOVER	RATE	
Initial												
1994	1,860	47,504	16,513	64,018	0	0	65,878	395,871	6.41%	12.00%	5.79%	
1995	(2,130)	49,709	17,327	67,036	18,759	0	64,906	414,244	6.40%	12.00%	6.79%	
1996	(3,510)	51,533	18,264	69,797	20,410	0	66,287	429,441	6.47%	12.00%	7.79%	
1997	(5,658)	51,303	19,361	72,665	25,711	0	67,006	444,195	6.60%	12.00%	8.79%	
1998	(7,510)	54,948	20,612	75,560	25,643	0	68,050	457,898	6.80%	12.00%	9.79%	
1999	(9,302)	56,520	22,028	78,548	28,341	0	69,246	471,000	7.05%	12.00%	10.79%	
2000	(12,671)	58,016	23,242	81,259	32,125	257	68,331	483,470	7.35%	12.00%	9.79%	
2001	(12,529)	59,123	24,150	83,273	35,340	1,607	69,137	492,691	7.55%	12.00%	8.79%	
2002	(13,772)	59,799	24,587	84,386	47,288	7,592	63,022	498,327	7.67%	12.00%	7.79%	
2003	(15,167)	60,946	25,011	85,956	50,350	8,852	61,937	507,882	7.71%	12.00%	6.79%	
2004	(16,221)	61,720	25,073	86,793	57,339	12,246	58,326	514,330	7.68%	12.00%	5.79%	
2005	(18,256)	62,314	24,993	87,307	65,207	16,146	52,905	519,283	7.59%	12.00%	5.79%	
2006	(17,720)	62,703	24,901	87,604	72,185	19,643	50,240	522,522	7.51%	12.00%	5.79%	
2007	(18,468)	62,781	24,681	87,462	84,852	26,169	42,826	523,178	7.44%	12.00%	5.79%	
2008	(18,964)	63,152	24,588	87,740	91,098	29,293	39,482	526,267	7.37%	12.00%	5.79%	
2009	(19,384)	63,214	24,394	87,608	101,013	34,400	33,824	526,783	7.30%	12.00%	5.79%	
2010	(20,380)	63,163	24,160	87,323	111,498	39,835	27,109	526,358	7.24%	12.00%	5.79%	
2011	(19,780)	62,966	23,917	86,884	121,877	45,255	21,849	524,719	7.18%	12.00%	5.79%	
2012	(19,971)	62,537	23,587	86,124	136,575	52,974	13,279	521,138	7.15%	12.00%	5.79%	
2013	(20,055)	62,312	23,341	85,653	147,258	58,559	7,039	519,269	7.08%	12.00%	5.79%	
2014	(20,071)	61,866	23,028	84,894	160,564	65,563	(740)	515,551	7.04%	12.00%	5.79%	
2015	(20,338)	61,315	22,683	83,998	174,866	73,111	(9,451)	510,960	7.00%	12.00%	5.79%	
2016	(19,528)	60,674	22,337	83,011	189,390	80,799	(17,316)	505,617	6.96%	12.00%	5.79%	
2017	(19,223)	59,963	21,965	81,928	205,903	89,535	(26,837)	499,689	6.92%	12.00%	5.79%	
2018	(18,856)	59,418	21,663	81,081	219,673	96,806	(34,581)	495,154	6.89%	12.00%	5.79%	
2019	(18,450)	58,794	21,340	80,134	234,831	104,818	(43,134)	489,949	6.85%	12.00%	5.79%	
2020	(18,261)	58,179	21,025	79,204	249,998	112,831	(51,888)	484,827	6.82%	12.00%	5.79%	
2021	(17,577)	57,561	20,725	78,287	264,966	120,742	(60,033)	479,679	6.79%	12.00%	5.79%	

TABLE 5

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Cash Flow from the Liability Exhibits 8, 9, 10, 11
 Excluding Policy Account, Annuities and Supplementary Contracts
 Surplus Development 7.25% Discount Rate
 Scenario Down 50 Basis Points for 10 Years

PVPROFIT/
 PVPREN

ASSET
 DURATION

5.2%

5.96

YEAR	PRODUCT	PRINC.	A/T	ASSET		TOTAL		10 YEAR			LIABILITY DURATION
	CASH FLOW	CASH FLOW	INT. CASH FLOW	CASH FLOW	CASH FLOW	CASH FLOW	ASSET	ASSET	ASSET	TREASURY	
					SURPLUS	DIVIDENDS		YIELD	TURNOVER	RATE	
Initial											
1994	1,860	47,504	16,513	64,018	0	0	65,878	395,871	6.41%	12.00%	5.79%
1995	(2,130)	49,709	17,095	66,804	18,759	0	64,674	414,244	6.40%	12.00%	5.29%
1996	(3,510)	51,505	17,490	68,995	20,178	0	65,485	429,209	6.35%	12.00%	4.79%
1997	(5,658)	53,183	17,734	70,917	24,704	0	65,258	443,189	6.28%	12.00%	4.29%
1998	(7,510)	54,632	17,818	72,450	23,009	0	64,940	455,264	6.17%	12.00%	3.79%
1999	(9,302)	55,869	17,750	73,619	22,914	0	64,317	465,573	6.04%	12.00%	3.29%
2000	(12,671)	56,883	17,535	74,417	22,420	0	61,746	474,022	5.89%	12.00%	2.90%
2001	(12,529)	57,466	17,248	74,714	19,928	0	62,185	478,885	5.73%	12.00%	2.90%
2002	(13,772)	58,032	16,963	74,995	24,873	0	61,223	483,604	5.58%	12.00%	2.90%
2003	(15,167)	58,415	16,652	75,068	20,411	0	59,900	486,795	5.44%	12.00%	2.90%
2004	(16,221)	58,594	16,318	74,912	19,042	0	58,690	488,279	5.31%	12.00%	2.90%
2005	(18,256)	58,605	15,955	74,560	18,155	0	56,304	488,376	5.20%	12.00%	2.90%
2006	(17,720)	58,329	15,575	73,904	16,095	0	56,184	486,076	5.09%	12.00%	2.90%
2007	(18,468)	58,072	15,205	73,277	19,436	0	54,809	483,931	4.99%	12.00%	2.90%
2008	(18,964)	57,680	14,828	72,508	16,207	0	53,544	480,668	4.90%	12.00%	2.90%
2009	(19,384)	57,184	14,447	71,631	16,361	0	52,247	476,532	4.82%	12.00%	2.90%
2010	(20,380)	56,591	14,057	70,649	16,900	0	50,269	471,595	4.74%	12.00%	2.90%
2011	(19,780)	55,833	13,666	69,499	17,175	0	49,719	465,272	4.67%	12.00%	2.90%
2012	(19,871)	55,099	13,289	68,388	21,623	0	48,518	459,159	4.60%	12.00%	2.90%
2013	(20,055)	54,309	12,915	67,224	22,007	0	47,169	452,577	4.53%	12.00%	2.90%
2014	(20,071)	53,452	12,544	65,996	24,888	0	45,925	445,437	4.47%	12.00%	2.90%
2015	(20,338)	52,546	12,173	64,718	28,705	30	44,350	437,879	4.42%	12.00%	2.90%
2016	(19,528)	51,274	11,751	63,024	32,719	2,463	41,033	427,281	4.37%	12.00%	2.90%
2017	(19,229)	49,927	11,322	61,248	38,646	5,907	36,113	416,080	4.32%	12.00%	2.90%
2018	(18,856)	48,744	10,939	59,683	41,771	7,856	32,972	406,203	4.27%	12.00%	2.90%
2019	(18,450)	47,476	10,550	58,027	46,205	10,505	29,072	395,637	4.23%	12.00%	2.90%
2020	(18,261)	46,214	10,172	56,386	50,582	13,123	25,002	385,119	4.19%	12.00%	2.90%
2021	(17,577)	44,945	9,808	54,753	54,698	15,608	21,568	374,545	4.15%	12.00%	2.90%

asset specific, meaning it had to do with principal repayment, default rates, and what kind of assumption we made concerning the yield on new investments. And these are the various sources we relied on. Internally, product managers relied on industry studies. Those industry studies helped the information from the product managers in those cases where we didn't feel our own data were sufficient enough.

We used the Tillinghast software on the asset side, combined with some information from investment firms, investment consultants, and company history. This particular company had over \$2.5 billion of assets in annuities, which of course, was done through the regular cash-flow-testing process. Some of the information concerning the linkage between lapse rates was a little more easily obtainable than, say, different interest scenarios. But I don't think that the fact that the information here was developed from larger data should detract from your ability to want to make a reasonable assumption. And you can always work from a band point of view or a scenario point of view, if you feel that the situation warrants it.

In summary, insist on ongoing support. It's critical particularly because consultants do get tied up. They get to the point where they say, "We've already done our work for you. Maybe we can squeeze you in, in a couple of months." So it's very important that you have some assurances from the consultant. And I hope you can fix the price on that assurance of ongoing support. Own that process eventually so you can get that consultant factor out of the equation. And have the software be specific to your needs if at all possible so that it can address other issues. And periodically, not just at the outset, not just at the end, but throughout the entire project, assess the value added so that you can determine if you really made the right decision here. Otherwise, you may wind up with a very surprising result midway through the project.

For our sources of information we relied upon pure companies, investment bankers, reinsurance partners, our auditors, and current software vendors.

MR. JASON A. MORTON: I have two comments. The first one regards dependency and "owning" your product. For several companies, we have done cash-flow testing independently, using a specific software package. The company has also purchased the same package, but doesn't have time to get up to speed, or it feels it doesn't have the necessary expertise. We give the people at the company the files, along with our report. In subsequent years, we help them to do the process themselves, and it has worked out very well for them. They feel more comfortable going forward on that basis.

Also, you talked about the final product. I think it's important to think about what kind of a product you want, up-front. An engagement letter should be prepared that spells out, for both parties, the scope of the project, the timetable, the fees, any reliances, and the end product. It will save you a lot of time, trouble, and arguments later on.

MR. RICCI: Those are very appropriate comments. I hope that by the tenor of my comments I did not speak ill of those people who are supporting your efforts externally. As a matter of fact, we've always been in the process of utilizing external consultants, and find their expertise invaluable. I agree with you concerning the matter of an engagement letter. Then you have a track to run on that could include software customization for clients, and moving them into a learning mode, and preparing them to deal with the ongoing situations.

MR. DOUGLAS N. HAWLEY: The Smaller Insurance Company Section newsletter invited thoughts about alternatives to traditional cash-flow testing. And in fact, I made a suggestion as to an alternative, that was printed in the last newsletter. Is anybody thinking about any alternatives such as gross premium valuations? I'm convinced that there is perhaps some middle ground between not doing anything, and spending \$5 million in order to do a full blown cash-flow test.

MR. RICCI: I think that we cannot avoid the regulatory consequences at this point. But if you can get some intermediate results that are worthwhile and that can be utilized in different situations, you may help to mitigate some of the expenses you incur in doing the more detailed analysis that's required. I think that developing a model that gives you a realistic evaluation on a gross premium basis, and then customizing it for regulatory applications, produces the situation where you can then use it for other things as well. That may lead to very profitable decisions concerning alternative investments that you might not have considered had you not had that particular model available.

MR. HOWARD W. HEIDORN, JR.: My first comment is that it appears that during this meeting, most people are thinking of cash-flow testing as a regulatory tool rather than a management tool. I submit that, if we think of it more as a management tool, we won't have as much difficulty in trying to get senior management to go along with some of the costs.

My second comment relates to models. It appears that some people are thinking that because a model is simple, it does not produce valid results, or it may not produce results as valid as some of the sophisticated software packages. I submit that this is not the case. Some of the simpler models, which we are able to set up ourselves and maintain control over, often will prove to be the most efficient. The more sophisticated models do not necessarily produce any better results than a simple model.

MR. THOMAS A. BICKERSTAFF: I work for a consulting firm that does regulatory consulting exclusively. I totally endorse the previous speaker's remarks concerning the use of cash-flow testing as both a regulatory exercise and a valid management tool.

With regard to nonexemption, a previous speaker suggested using 1993's Section C as the starting point for 1994. I don't think that's going to fly. At least if you were filing your opinion in a state for which I am doing the regulatory work, it would not be acceptable to me.

I would like to confirm what the speaker had to say relative to nonexistence of interest-sensitive products not keeping you out of the position of being required to file a Section 8 opinion rather than Section 7. I was in a position not too long ago to reject an opinion and memorandum. There were five scenarios in which the cash flows and the surplus position of the company were positive at the end of the 20th year. There were two upward interest scenarios where there were some seriously negative surplus positions developed during the intervening years. I rejected the opinion because the intervening negative surplus positions were very serious and were totally ignored in the opinion and memorandum. Do not conclude that things are fine just because you get a positive surplus at the end of the surplus period.

MR. DANIEL H. HAAK: Could I ask you why you would require a new asset adequacy analysis and Section 8 opinion?

MR. BICKERSTAFF: Going from size B to C, even if the increase is only \$10 million, is a change in the status of your company. As a result of that change in status, in the states that I do work for, that would be a trigger, and it would unconditionally require that you do the work all over again.

MR. ERNEST HUVAL: I have a number of clients that are Category A companies, and I find that the exemption criteria works very well. Those companies that should not have been exempted did not get exempted. Does anybody know if risk-based capital is being considered as a potential exemption criteria?

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MR. DREYER: This question has come up in terms of risk-based capital triggering or not triggering a Section 8. In effect, it will trigger extra Section 8s, but you cannot be exempted because you have a good risk-based capital ratio. At this point, the Life and Health Actuarial Task Force felt that, basically, they are different tests. In fact, one of the reasons the tests are light on C-3 weightings for liabilities is because they are assuming that you are doing the Section 8 asset adequacy work.

MS. CLAIRE: Is there any state other than Texas that requires a supporting actuarial memorandum in conjunction with a Section 7 opinion?

FROM THE FLOOR: Not that I'm aware of.