

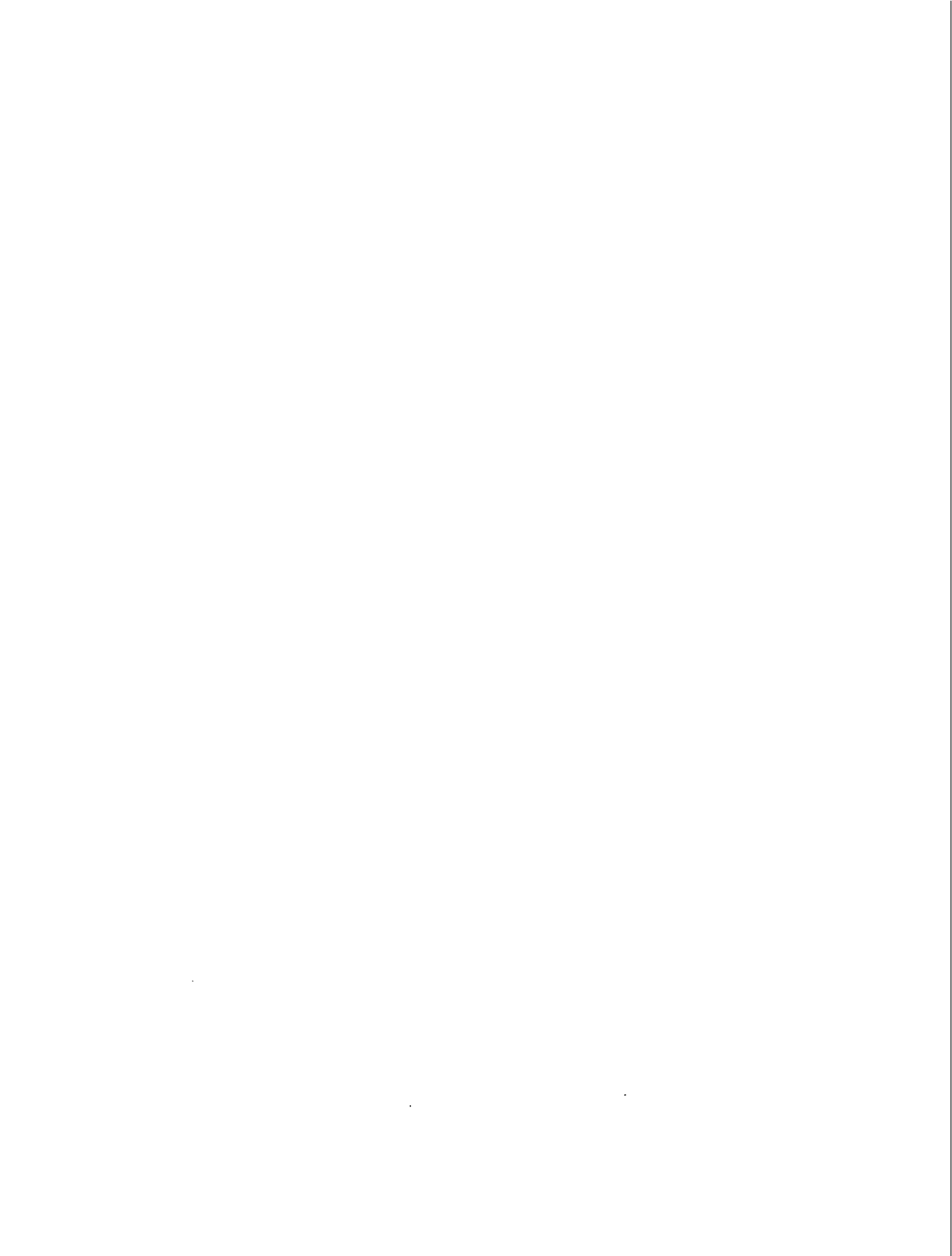
**1997 VALUATION ACTUARY
SYMPOSIUM PROCEEDINGS**

SESSION 35

Establishing the “M” in “ALM”

Francis P. Sabatini, Moderator

Albert V. Sekac



ESTABLISHING THE “M” IN “ALM”

MR. FRANCIS P. SABATINI: I’m with Ernst & Young, and my co-speaker and good friend, Al Sekac, is from American General. We’re going to talk about the “M” word. I thought we’d start with some definitions. To set the tone for this session, I went to *Webster’s Dictionary*, and I looked up the word *management*. I didn’t like the definition, so I took the verb *manage*, and it gave me three definitions: (1) to control the movement or behavior, (2) to have charge of, direct, and (3) to succeed and accomplish. Each of these definitions imply action, and that should be the result of the management aspects of any asset/liability management process. So the theme is action.

Any asset/liability modeling (ALM) process should have a set of objectives, and it’s important that everybody in the organization understand them. A sample objective is to establish a *disciplined* process that provides *management* and *other constituents* with routine and ad hoc, *credible, actionable* information on risk and reward alternatives for the total entity and permits the establishment of risk tolerance. I wanted to highlight almost every word in the statement, but I have selected a few because these are all key: *discipline, credible, management, other constituents, actionable, and risk and reward*. Reward is a key word -- let’s not forget that ALM also involves the reward aspects, total entity, and risk tolerance levels. We’re going to talk about all of these elements.

The management part of the asset/liability management process really links back to the process itself. It needs to be effective. I thought I’d devote my first comments to talking about the attributes of an effective ALM process. Without them I believe that you can’t establish the “M” in ALM. Many of these observations will be based on my experience in working with many companies and observing what other companies have done, noting what the best practice companies have accomplished within their organizations.

What are the attributes? There are seven: discipline; routine; management support; a total company view; a sound foundation; actionable information; and finally, actions. Maybe another word for

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actions is decisions because, clearly, a decision to do nothing is a decision as long as it does not have a *de facto* outcome. I'm going to discuss each of these attributes.

Discipline

What does discipline mean? It means there are assigned responsibilities. Let me illustrate the assigned responsibilities point with an audience participation exercise. If I walked into the lobby of your building and went to the information desk and said, "Can I please talk to the person responsible for asset/liability management or risk management," will the person on the other side of that desk be able to give me an answer?" Let's have a show of hands. I would guess maybe 20% said yes. My point here is that there is an assigned responsibility. It's extremely important, and we've seen in the best practices that it's very clear within the organization who is responsible for managing the asset/ liability management process.

Adequate Staffing

Al Seckac's full-time job is asset/liability management at American General, and at successful companies the people who are doing that work are doing it on a full-time basis. It's not a part-time job. It's a full-time job if you're going to do it right.

ALM Committee and Work Groups

The ALM committee is key. That's the decision-making forum, so it needs to consist of decision-makers. The work groups are the people who get the work done. There's also routine reporting, and I'm going to talk more about how that is an important part of the process.

Routine

Some of the companies with the best practices provide updates on their risk management positions in the form of standard reports on a monthly basis. Are they running the models monthly? Yes, in most cases. It creates a framework because the people that receive that report become familiar with it and they understand it. There's no question as to the credibility of the information in the report. That routine nature helps build that overall infrastructure and foundation. And there are standard

measures and measurement bases. By establishing this disciplined process and routine reporting, you create a framework so you can start looking at alternatives in terms of a special study or an ad hoc study. You have created a frame of reference.

This is the key. In the companies that have been successful, senior management of the companies have viewed the process as valuable. They’ve understood the information. It has been presented to them in actionable form, and they’ve made some sound decisions with regard to risk management.

Who’s on the committee? You usually find some of the most senior people in the company as the voting members, and then you’ll have other participants involved in the process: chief executive officer, president, chief investment officer, chief financial officer, chief actuary, and key line-of-business representatives, such as the individual who runs the annuity line or the life division.

Management support is extremely important. How do you get it? You get it by building that foundation. You have to work hard at making managers pay attention. If they come to the meeting, and they’re getting good information, they’ll become the greatest supporters of the process. Later, I’ll talk a little bit more about that and some of the experiences I’ve seen with companies in terms of management really becoming an active part of the process and participating.

Total Company

I’ve referred to total company as the holistic view. It’s awfully hard to make decisions about a line of business, and portfolio segment, without having a broader perspective across the total company. You’ll get questions like, “If we have too much risk here, do we have other lines of business where the risk isn’t as great or it’s complementary?” My experience has indicated that if management doesn’t have the broader perspective, it has difficulty making decisions. This is especially true if the request to do something is fairly dramatic, such as change investment strategy, reposition assets in a portfolio, or implement a hedge program. Those decisions tend to be difficult without a broader, total company context. There are situations where product-specific decisions are easier, like

crediting strategies, although even then one can argue that having the total company perspective would be helpful in the decision process.

Sound Foundation

Quality models produce quality results. Those of you who have heard me speak before know that this is my never-ending theme. You really need to work hard to make sure that you build models that reflect reality on the key assumptions. Techniques where you're approximating what's going on in the model are good in certain contexts. In a risk management context, you need to build in reality. That means the crediting strategy that is inherent in any model really needs to reflect what the company's going to do in certain environments. I know we don't have enough experience in high interest rate environments to know what we're going to do. However, I've seen clients engage their management in discussions asking, "If this happened, what would we do?" It's very interesting because of the process. There's the initial reaction, and then there's a disclosure of the consequences of those reactions. Once they're thought through, then they're reflected in the model, and at least they represent management's expectations.

It's extremely important to build quality models. It's also extremely important to get management buy-in on key assumptions because when you present the results of your modeling work, there's no question on the part of management as to whether or not this is good or bad information. I don't know how many of you have experienced it, but I've seen a number of instances where model results have gone to management. Basically, the question is how good is this information? Get agreement on the methodology, assumptions, and sensitivity of the results to get changes in those key assumptions. What if the lapses aren't the way we think they're going to be? What impact will that have on the decision that we're looking to make? It's extremely important. It's about building that credible platform and getting management to accept its credibility. Getting them to buy in on the assumptions is extremely important in terms of building an effective process.

In the end, it needs to be actionable. If decisions have been made, then you know that it's an effective process. The key is the information needs to be credible and understandable. It's the best

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way to get management’s attention. If they go to the ALM committee meeting, they will be presented with information, they will learn something about the risk position of the company, or they’ll be given good information that allows them to make a decision, to support the process. If they walk away feeling like you wasted an hour of their time, you’re not going to get the support.

Now on to risk measures and risk tolerance. Let’s assume you’ve selected duration as a key risk measure for the company. If you told your CEO that the company had a one-and-a-half year duration mismatch, what would he or she do? The five choices are: (1) lose sleep that night; (2) direct the repositioning of the company’s assets and liabilities; (3) play golf that afternoon; (4) become frustrated; or (5) fire the actuary.

How many think that you will lose sleep that night? Two. We were actually able to count those. How many feel that it’s (2)? Interesting. At least a dozen, maybe a dozen and a half. How about choice 3? An equal distribution between 2 and 3. How many believe it’s 4? Numbers 2, 3 and 4 are about tied. I think I know the answer to this one, but how many think 5? There’s a point to this exercise. It goes back to my earlier point about understandable information.

How many people in the room have a CEO who truly understands duration? Those people could use duration as a risk measure. This exercise is designed to point out that the measure needs to be understandable. It needs to be actionable. How many people believe that knowing that you have a one-and-a-half-year duration mismatch provides you with enough information to make a decision? Not one hand went up, which is exactly my point. You’ll hear it again.

What’s the key attribute of a risk measure? Keep it simple and to the point. It communicates the company’s risk position in terms that management can understand. If you can’t do that, you will not have an effective ALM process, and you will not get the “M” in ALM.

Let’s talk about some risk measures, although I’m not going to cover all of them. I’m willing to entertain questions about different measures. I also want to make a distinction between a measure

and a measurement basis. Duration and convexity are kind of unique because they are a little bit of both. There are other ways to define the measure. The measurement basis is how you operate on that measure.

Duration and Convexity

It's not for everyone. What does it tell me? Do I have enough information with duration and convexity to allow me to make a decision? Is it actionable? Is it relevant for certain types of liabilities, primarily premium-dependent liabilities, such as universal life and traditional life? What's the duration of a term policy?

If you're a multiline company, you have a variety of products and you want to take the total company view. If you decide that you can't calculate duration and convexity for certain types of liabilities, then you can't get a total company measure. Al and I and others in this room and others outside the room have debated about what's the right way to calculate duration for products that have forward premium flows? I don't know. I have some ideas, and I've calculated it, but I do it with great caution. Duration and convexity also ignore future forward flows, premium, reinvestment, taxes, and new business. Duration and convexity have a place, but I frequently recommend the use of duration in a broader context where there's another risk measure in place. It's also one of the few ways you can communicate with investment professionals. I mean you can't tell them to manage the assets so that profits meet a certain level. They have a hard time doing that. But if you tell them what the duration target is, they understand that.

We will talk about duration as if it's a point estimate. The reality is that all we need to do is play with some of the assumptions (about which we know little), and we can change the duration result. Maybe we shouldn't think of it as a point estimate but think about it as a range. Of course, that makes it harder for the investment people who think of duration as a point estimate. How do I manage to a range? Maybe we have to help them get there, but my point is that there's just too much in the way of assumptions to somehow stand there and say that duration is a point estimate at two-and-a-half.

The other point here is the duration is only as good as the level of interest rates on the day that you made the measurement. Any change in interest rates is going to change your duration. You don't have to do anything. All interest rates have to do is change, especially if you have embedded options in the assets and the liabilities. Duration is going to change. When you start presenting duration information, present it in a context that illustrates the change in duration with interest rate changes.

Finally, I have a point about risk tolerance. When establishing a risk tolerance level, what should our target be? It shouldn't be a point estimate. You need to recognize that your tolerance has to at least reflect what a change in interest rates have on the duration of your assets and liabilities and where you want them to be.

Another measure is the market value of assets, liabilities, and surplus. It's the foundation of the duration calculation. I like it because it's effective in communicating overall risk exposure. It's a great way of illustrating risk to a variety of constituents with different levels of expertise. It still has the same problems that duration and convexity have. Insurance company assets and liabilities combine to form a short straddle position. A short straddle is a position that pays off if nothing changes and a loss occurs if change occurs in any duration.

A rise in interest rates causes extension of the assets and shortening of the liabilities. The liabilities shorten because of crediting rate subsidies and heightened surrender activity. The net result is a loss in value.

A fall in interest rates causes asset prepayments, and on the liability side, contractual guarantees come into play. The net result is a loss of value.

The asset negative convexity and positive liability convexity combine to form a short straddle position. Any secular upward or downward move in interest rates results in a loss in value. When the company's assets and liabilities are mismatched, the loss exposure to a move in interest rates is exacerbated.

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This market value of assets and liabilities can be used, for example, to evaluate the impact on surplus of different crediting strategies. It can be used as an effective way of evaluating whether or not you want to make a particular decision or not, to hedge or not to hedge, to change the strategy or not to change the strategy. This is particularly relevant if you can create a frame of reference in how much value change you're willing to tolerate.

Another risk measure is earnings. How many people here believe that their management can relate to earnings? Management can relate. It's a wonderful choice for a risk measure. It can be used with a variety of measurement bases, and I'm going to try to illustrate that later. It can be used to define risk and risk tolerance in a meaningful and actionable way. It also permits different time horizons.

How many people believe management can relate to next year's earnings better than they can relate to earnings over the next five years or better than they can relate to earnings over the next 30 years? I made my point. Earnings as a measure allows you to talk to management in terms of risk as it relates to near-term earnings, mid-term earnings, and long-term earnings. It's also relevant for premium-dependent liabilities. I'm able to project income statements and balance sheets for any product, as long as I get the models right. It recognizes future premium, reinvestment, taxes, and new business. It's all there, and they can relate to it.

You can use a stochastic framework. You can present discounted earnings or undiscounted earnings. I like undiscounted earnings. We can use an embedded value context. We can use an earnings-at-risk context, which is a variation on the value at risk that is one of the new industry buzzwords. Present value of distributable earnings is another alternative. Another alternative is rate level distribution. This method segments results by the level of interest rates over the path. Any approach can be used. The end objective is to present results in a way that management can understand the results. If they can understand it, you can ask them to make a decision. They'll probably make the decision, and hopefully it'll be the right one.

Another presentation form is the risk profile curve. It is the results of a stochastic set rank ordered from highest to lowest. It allows you to make probability statements. You can talk about percentage of outcomes that fall below the mean level. You can talk about the tail scenarios. You can talk about where you have a 10% chance of losing x dollars of earnings over the next five years or whatever horizon you're using. I can relate to that, and I've seen managements relate to that.

An even better approach is what I call the rate level distribution. It needs some explanation. If you create a stochastic scenario set, for every scenario that you generate, you can categorize each scenario by the level of interest rates over the time horizon. You can average the five-year rate. There are so many scenarios between 5% and 6%, and so many scenarios that average between 6% and 7%. Then combine all those scenarios and look at the average level of earnings for those scenarios and be able to make some statements about risk. For example, if interest rates stay between 5% and 7%, we're relatively indifferent to changes in interest rates. If they start to shift down to 4% or above 8%, we start to lose earnings or value. You can make statements like we'll lose 40% of our earnings over the next five years or the next ten years if interest rates go above 8%. It can be a very powerful measurement basis, using a measure that management can relate to.

Another approach is a graphical illustration of the path-wise earnings by year. It does a good job of illustrating risk and earnings pattern dynamics. It really doesn't do a good job of telling you how much risk there is.

Earnings at risk, very simply defined, is the amount of earnings loss exposure relative to a baseline result. Baseline could be your planning forecast or your financial plan. It could be the mean expectation of earnings over the time horizon. For example, the 10th percentile versus the mean shows a \$50 million loss in earnings over the horizon. You start asking management questions like, are you willing to tolerate that much earnings erosion over the horizon? But earnings at risk is just a comparative measure to a baseline. How much can we lose? It illustrates and quantifies risk effectively. It's understandable, and it's actionable.

Risk tolerance is a very practical thing. I said to someone when we were talking about asset/liability management that it's an art, not a science. Maybe we, as a profession, can make it a science some day, but right now it's an art. In the end, if you can provide management with enough information they're going to have to make some judgments. They're going to have to go on their gut feeling on underlying assumptions because many times the information that we present is heavily dependent on the assumptions that we've built into the models that produce the results. But in a very practical way, how much are we willing to lose in earnings and value over a defined time horizon? In getting to that tolerance level, you need to provide enough information so management can ultimately answer that question.

I'll talk now about the process. It's an iterative process. It is back and forth. It's done within a framework. You need to create that structure. They need to go to the meeting every month. You need to present them with good information. You need to build a foundation with credible models and assumptions. You need to define the risk measures and measurement bases, and get management to buy into the idea that this is the way we're going to measure and manage risk and assure that they understand it. Once you've got them comfortable with routine reporting, then you can start examining alternatives to the baseline in a comparative way. They're likely to ask you, "What if we did this?" They're going to ask it so many times that you realize you don't have enough staff to respond to their questions. When you've gotten to that point, then you know you've established the "M" in ALM, and if you haven't experienced it, believe me, there are people out there who have.

How do you get to the risk tolerance sequence? You establish your process. You build your measurement framework, you go to management, and you present the results. Nine times out of ten, they look at the result and they say that it's too much risk, and then you must fix it. So, you go back to your work group. You come up with alternatives and you go back and you present them. You say here are the solutions. You tell them how much it costs. The response is, "The solution is too expensive. Go back to step one and iterate." Eventually there'll be a point where their comprehension level and comfort level will allow them to either want to hedge out the risk, take less

risk, take more risk, or spend some money to mitigate risk. They'll make a decision. They'll allow you or whoever is responsible to execute. When it comes to risk tolerance, the reality is they'll know it when they see it, and they'll iterate to it. It's not something that comes naturally. You'll get in a room and present the results. There will be seven people in the room, and they will have different tolerance levels. If you're working with an asset/liability committee, you're going to have to get that committee to draw some consensus on how much risk is too much and how much is too little and how much is just right.

I didn't spend a lot of time talking about communication. My point here is that if you establish the process, communication is just a natural consequence in the process. If you're meeting the needs of each constituency, you will end up effectively communicating. There's no such thing as too much information, but there is such a thing as too much detail. I hope you get the distinction.

In the end, management learns about the business. Now, that's somewhat presumptive. I guarantee that if they go through the ALM process, they'll learn more about their business than they knew before. I've seen it happen, and the ALM platform, if you stop and think about it, is the only prospective and dynamic information system available to them. All the earnings information, GAAP, statutory, or any of the other reporting bases tend to be retrospective, and they tend not to be dynamic. This becomes a platform where management can get insight they may not have been able to get otherwise.

Once you get the “M” in ALM, what kinds of things can you do with it? What's your goal? One is to manage risk, and another is to add value. There'll be a point when going to the ALM risk committee meeting is going to be boring. Our position hasn't changed. There's nothing new to report. You know you've made it when you get there. But there's a lot that you can do with it. What are your activities? You can define risk and its primary focus. Reach some agreement on what the tolerance for risk is. You can evaluate different crediting strategies and different investment strategies. Should we get rid of our mortgage-backed securities (MBSs) or shouldn't we? Should we do more of a certain asset class? Should we hedge? Should we not hedge? Should we write

more or less of certain types of new business? Is the new business that we're writing profitable? Do we have sufficient liquidity in the portfolio? Is there too much? All I'm doing here is trying to convey the kinds of questions that can be answered. The key is having the platform and building that effective process.

So, how do you get the "M" in ALM? You build a good, sound process with a good, sound infrastructure. You get management to pay attention because of the quality of the information that's being presented. Now, I'm going to turn you over to Al who's going to talk about the process for American General.

MR. ALBERT V. SEKAC: I hope to be able to complement Frank's speech by giving you an idea of where the ALM management process is at my company, American General. I'm going to be talking about getting management's attention and defining risk and return measures. I've given you examples of this plus a description of a project that we did along these lines. I'll also discuss asset adequacy analysis.

At my company, the investment management function is centralized at the corporate level. What that really means is that all the investments for all our subsidiary companies are done in one, central location. This is sort of a bifurcation of asset and liability management in that the liability side is performed in each of the subsidiary companies. The financial reporting function and ALM research is done in my area, the investment area. The valuation actuary's assumptions and asset adequacy analyses are performed in the investment area.

There are six subsidiary companies that form the AG structure right now. U.S. Life is an example. It was a recent acquisition, and there are three major components to the U.S. Life corporate structure. The people who have been reading the *Wall Street Journal* lately might notice that Western National is not on the list. That acquisition just happened a few days ago. Don't get the impression from this presentation that everything is operating at a high level of sophistication. There are some companies

in which the process has just started. The process is in place at the more-established American General companies.

I already mentioned that much of the valuation actuary work is done in the subsidiaries. Later on you're going to see some of the work groups, which is the kind of structure Frank was talking about. That is done with both investment side and liability side personnel, and that happens on an ongoing basis. When I say driver, I mean a person who asks nasty questions, and wants to get work done. Many of the questions emanate from the office of the chairman. Many more come from my boss who's a very knowledgeable CIO, unfortunately for me. He keeps me very busy.

What do we mean about the ALM process being formalized? It means that, at least in my company's context, there is a documented system that contains procedures. There is a systems manager that is appointed. There's a periodic reporting function that's in place, and it is continually monitored by outside corporate people to ensure that the process remains effective and efficient. Again, bear in mind that not all of the subsidiary companies are on the same footing, but the ones that are have this kind of a process in place.

Again, we have three levels of committees. There's a senior level committee, which consists of the office of the chairman, the chief investment officer, and key subsidiary company management people. This senior high level committee meets once a year. An actuary from another subsidiary company, usually but not necessarily a valuation actuary, is called upon to sit in and opine on any of the discussion that he feels is relevant. So the intent there is to get some cross-fertilization going between companies and also to achieve some level of consistency among the various companies.

The strategic committee meets twice a year. It consists of fairly high-level management from both the subsidiary company and from corporate. This is a committee to which the work groups report. It reviews status reports and tactical questions emanate from this group. There's a lot of overlay between this committee, the higher level committee, and the lower level committees.

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The ALM work groups consist of valuation actuaries and selected staff from each company. There is financial reporting staff, chief financial officers of the subsidiaries, and my unit, which is the investment division ALM staff. This group meets monthly. This monthly meeting takes place as scheduled each month even if not much progress has been made. The intent is to maintain momentum and make sure that those responsible for each side of the balance sheet know what those on the other side are doing and are interested in. Let me make a comment about these three groups. You may get the impression that it's a top-down process. It's not. It's as much a bottom-up process as it is a top-down process. So it's a feedback loop. Information is flowing both ways.

I want to discuss some of the measures that the ALM work group and that the strategic work group have come up with. There are six different kinds of profitability measures. I'm not going to bore you by reading each measure. Level 1 means the kind of measures the ALM work group is interested in. Level 2 is the strategic committee, and Level 3 is the senior committee. We will give the senior committee, whenever they meet, the latest option-adjusted value of distributable earnings (OAVDE) information and market value of assets and liability information and the fixed investment spread. These measures were decided upon by consensus of the ALM work group and by the strategic committee.

There are 15 different risk measures. Again, the intent here was to give you an idea of the kind of thinking that went on in our company in terms of what kind of measures would be appropriate for measuring risk in our business. I'm not going to go over these in detail. Supplementing these risk and reward measures are trend analyses. The trend analyses are put together by subsidiary company actuaries.

I also have information on assets, liabilities, spreads, quality of assets, reinvestment assumptions, account values, percentage of account values modeled in our business, and so on. The subsidiary companies' actuaries use these to keep track of where the business is and how we're doing on a trend basis. It's as integral an item as risk and reward measures are to our reporting.

There is an OAVDE project. Now, let me explain that. OAVDE is the PTS term meaning option-adjusted value of distributable earnings. The risk and reward measures quantification project was the subproject of this main project which has been ongoing, and I put in a sample description of this project. It was intended to vary assets that would either have options in them or not and two different kinds of withdrawal assumptions. We could put caps and floors into the asset side to see how that would vary the risk and return measures. I'm not going to go into much more detail.

Finally, there are the results. We considered OAVDE and net gain from operations to be useful. There are discounted accumulated capital transfers, capital transfers by year, duration and convexity statistics and percentage of scenarios that produced losses. This was a 500-scenario run. In PTS terms, to the people who use that software, we ran a corporate model job with 500 different scenarios, 35 of which were hand-picked by management. The others were randomly generated. We transferred financial information such as balance sheet and income statement items, from those model runs into Lotus and Excel spreadsheets. We then massaged that information in order to compute the risk and reward measures, and then finally produced the graphs.

The assets were optionable. The liabilities had a high lapse assumption. The liability crediting strategy method for these single premium deferred annuities (SPDAs) was a portfolio rate. We overlaid caps and floors on the assets. Table 1 shows a listing of the risk and reward measures that were produced as part of this project.

TABLE 1
Portfolio: OLPB (105)

Portfolio Description: Asset Type: Optionable Lapse Assumption: With lapses Crediting Strategy: Portfolio Rate Derivative Usage: Caps and Floors Used			
Initial Portfolio Statistics:		Assets	Liabilities
Duration		4.65	4.76
Convexity		-33	91
Reward Measures		Risk Measures:	
Mean PV of Capital Transfers:		Histograms:	
To Year 5 \$25.4 To Year 20 \$49.2		PV of distributable earnings -- 5 year and 20 year PV of Net Gain from Operations -- 5 year and 20 year	
Mean PV of Net Gain from Operations:		Loss Scenario Percentage:	
To Year 5 \$16.3 To Year 20 (constant discount factor) \$29.8 To Year 20 (scenario discount factor) \$28.3		To Year 5 0.0% To Year 20 4.2%	
Mean Accumulated Capital Transfers and Surplus:		Expected Value of Loss Scenarios:	
To Year 5 \$57.8 To Year 20 \$88.9		To Year 5 \$0.0 To Year 20 (\$0.6)	
Mean Ending Accumulated Capital Transfers:		PV of 5-year capital transfers statistics:	
To Year 5 \$33.6 To Year 20 \$89.0		Standard Deviation \$2.2 Minimum for any one scenario \$7.9 Difference -- Highest/Lowest \$26.8	
Mean Earned Yield:		PV of 20-year capital transfer statistics:	
To Year 5 7.36% To Year 20 10.15% Minimum to Year 20 0% Maximum to Year 20 25.00%		Standard Deviation \$8.9 Minimum for any one scenario \$18.5 Difference -- Highest/Lowest \$40.9	
Mean Required Rate:		PV of 5-year net gain from operation statistics:	
To Year 5 6.27% To Year 20 6.15% Minimum to Year 20 5.45% Maximum to Year 20 12.28%		Standard Deviation \$1.9 Minimum for any one scenario \$6.2 Difference -- Highest/Lowest \$11.4	
Data on IRRs for Capital Transfers:		PV of 20-year net gain from operations statistics:	
Mean 17.10% Standard Deviation 3.51% Minimum -0.12% Maximum 19.97%		Standard Deviation \$13.5 Minimum for any one scenario (\$38.3) Difference -- Highest/Lowest \$82.7	
Note: \$\$ in millions		Accumulated Capital Transfers and Surplus -- 5 year:	
		Standard Deviation \$2.8 Minimum for any one scenario \$39.5 Difference -- Highest/Lowest \$20.5	
		Accumulated Capital Transfers and Surplus -- 20 year:	
		Standard Deviation \$29.8 Minimum for any one scenario (\$56.1) Difference -- Highest/Lowest \$179.1	

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Finally, Charts 1-4 are box and whiskers plots. The mean is in the middle, which is the little square, and then there is the top 25%, lower 25%, and the range of the distributions to plus and minus 100. Anything that lies outside of that are the outliers which are the whiskers. It's a neat pictorial way of seeing your results all in one place. It's a useful reference item.

CHART 1
Portfolio: OLPB (105)
Range by Year for Net Gains from Operations

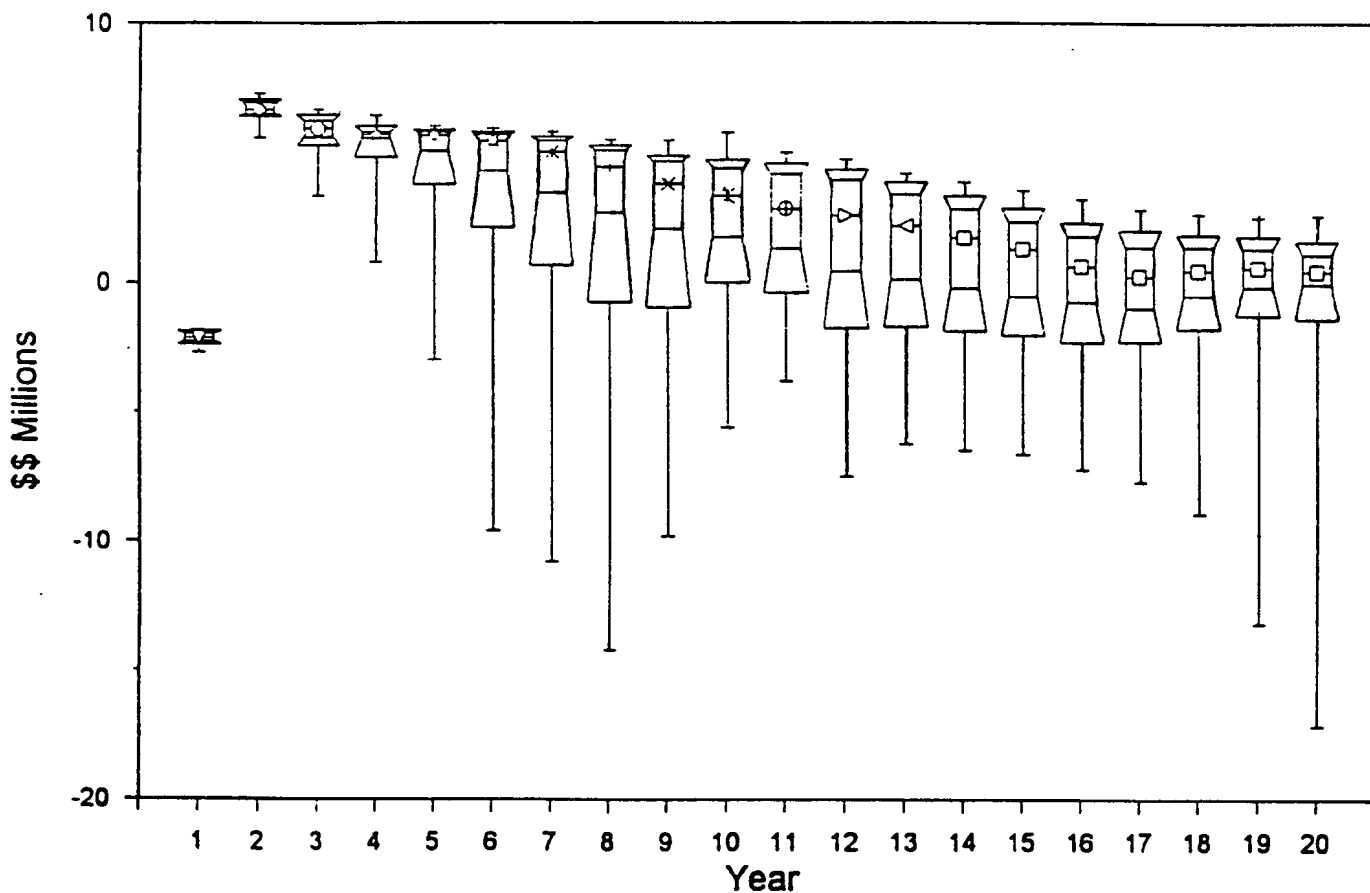


CHART 2

Range by Year for Capital Transfers

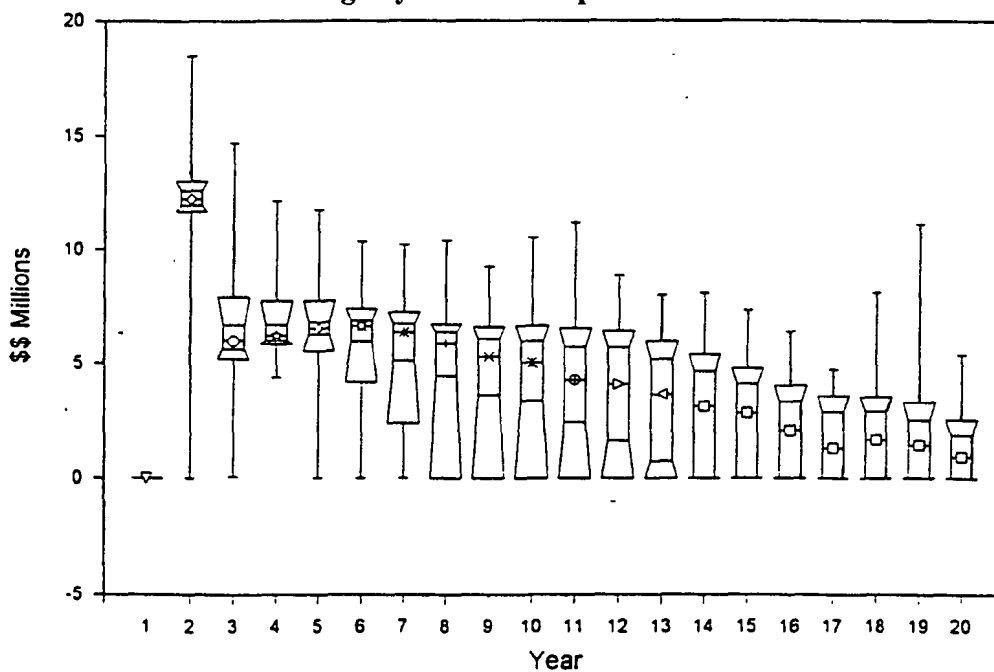


CHART 3

Portfolio: OLPB (105)
Range by Year for Cash Flow from Operations

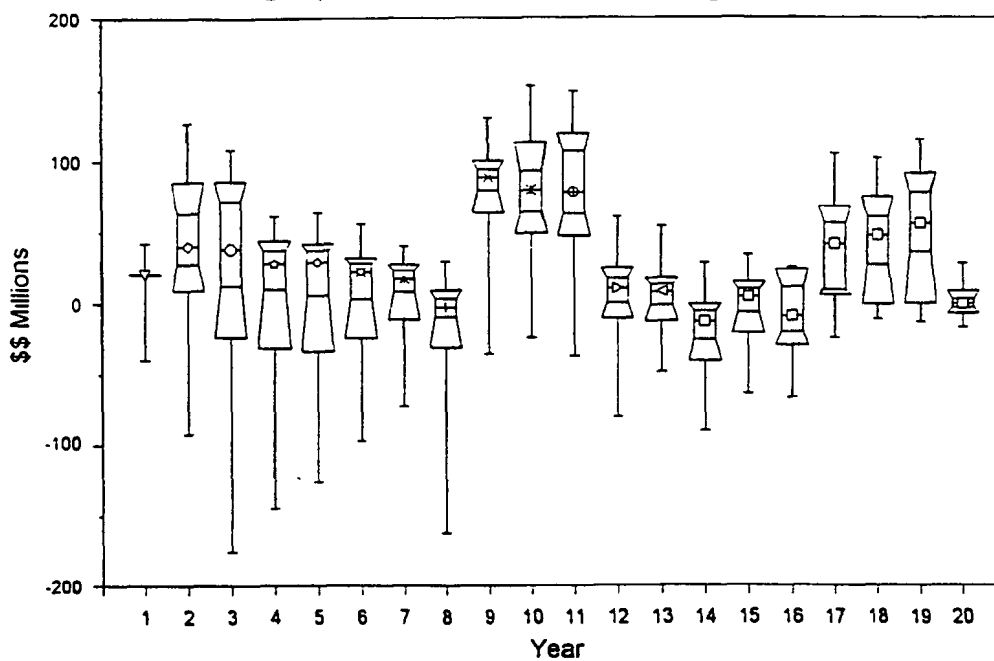
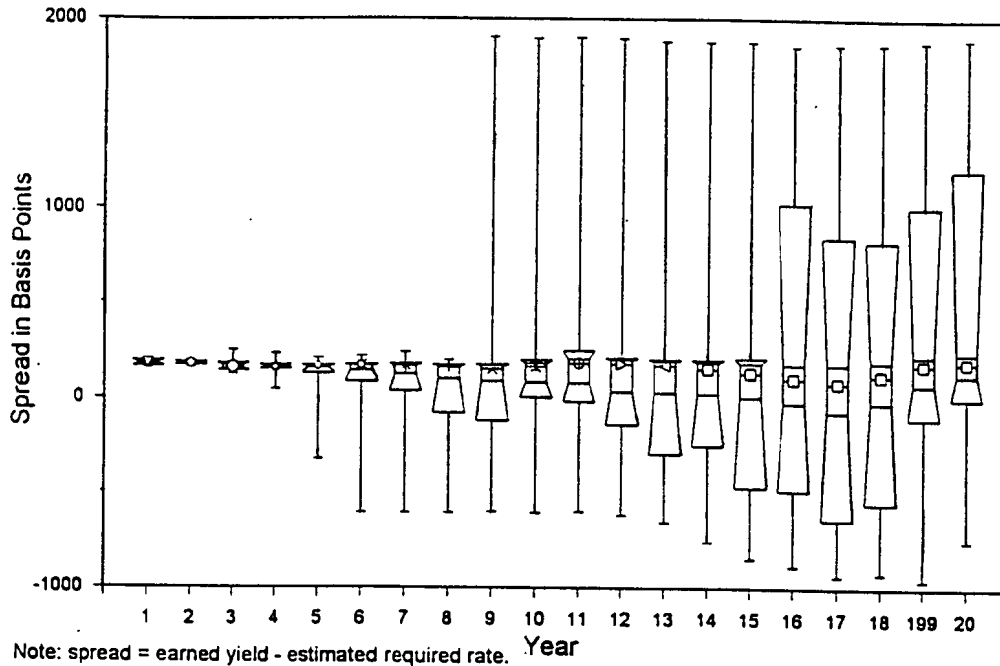


CHART 4

Portfolio: OLPB (105)
Range by Year of Estimated Spreads



There are next-generation questions asked by management, which are questions that have been asked by my management either directly or indirectly. I want to share these questions and have the audience participate in a few of them. What is the optimal duration and convexity relationship between the assets and the liabilities? The feeling was that a close match is what we want. Is this really the case? There was a more in-depth analysis performed in order to answer that question.

Which are the most appropriate measures for the asset/liability management process? Are they book value based or market value based? There was a big discussion along these lines between Cindy Forbes and Dave Becker at Session 17. It was a very interesting session on the optimal proportion of credit and convexity risk.

Let me give you some background. There was a question asked by my CIO recently. The underlying assumption was that a close duration match is really where we want to be. Where do you take your risk? Do you take your risk on the credit side or do you take it on the convexity side?

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What's the relationship between these two things? Are they correlated? Are they not correlated? If he's going to structure a portfolio, what percentage of below-investment-grade bonds and mortgage-backed securities is optimal? It was an interesting question, and to that I can refer you to some information from the Society of Actuaries.

Irwin Vanderhoof had an interesting paper on credit risk in which he said that credit risk really peaks depending upon economic conditions and usually in a period of substantial disinflation (as there was during the crash of the 1920s). If you think about it, in a higher interest rate environment, money is cheaper and easier to repay. Therefore, you would not expect a high level of default. Now, that's easy enough to say. Translating that into how defaults vary with the level of interest rates is another matter altogether.

The next question is really tough. Assume that mortality, as well as interest rates, withdrawals by policyholders, and asset defaults, equity market movements, are all interrelated stochastic variables. Can you do a risk evaluation if all of that is true? This requires a second generation kind of an ALM system. The first generation produced fuzzy results. I have attended sessions here where I've heard it said that the limitations of cash-flow testing right now are that the ALM models cannot fully be trusted. The assets and liabilities are not fully modeled. Strategies are limited and locked in under all economic assumptions. I think that the limitations particularly apply to reinvestment. Also regarding economic conditions, the kind of behavior that's simulated is rather simple.

Extend asset/liability management to a more general risk management function. Again, what we need is a second generation ALM system. By this I mean you should be able to model all the critical risk component variables in one place. Let me give you an example of some of the items that we are struggling with. We have increased scrutiny by Standard and Poor's in terms of the convexity risk. We have equity-indexed products but I don't feel very comfortable in how we're going to be modeling some of the variables there. What we're struggling with is where do we come up with the second generation model? Do we develop it internally or externally? If anyone has a similar

ESTABLISHING THE "M" IN "ALM"

concern, contact me at my Society address. That's a topic under much discussion in my company right now, and we have no good feelings for solutions at all.

Communication is continual. There's mutual cooperation between the actuaries in the subsidiary and the corporate ALM personnel. There are regularly scheduled meetings, and, just as importantly, there are unscheduled meetings that are held to resolve all kinds of tangential issues -- either ALM issues, pricing issues, or valuation actuary issues. There's a consensus building. Most of the work occurs at the ALM work group level. By the time information flows up to management, there's a consensus. I'm going to contradict something Frank had said. He said that after a while it becomes cut and dried. It never becomes cut and dried. It's always changing. Frank says he was talking about a standardized report here. Subrogation means people who come to the work group come with their own individual objectives or their own hidden agendas. In order to make these analyses produce meaningful results, you have to figure out why are you a member of the work group. What are you trying to accomplish? You all have to get together and put on a group hat instead of an individual hat.

