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INVESTMENT STRATEGY AND PENSION SURPLUS MANAGEMENT

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- Which liability or surplus (if any) does a plan sponsor need to manage?
- How does investment strategy change with various surplus or liability perspectives?
- Why has surplus or liability management not been popular with plan sponsors?

MR. MICHAEL W. PESKIN: I am going to start by taking you through a few frameworks that exist in the asset allocation area. The three frameworks we are going to look at are the asset only framework, the asset-liability framework, and the asset-liability-sponsor framework. I am going to explain why, in my opinion, the first two are not correct. We're then going to move to what I think is the right framework, which is the asset-liability-sponsor framework.

We will look at the rationale underlying each framework, the objectives under each framework, and the kind of asset-allocation results you get under that framework.

To illustrate with numbers, we need to run a simulation model. To understand the results, you need to understand the model that we've used. So I'm going to model what we use to get results for specific plans.

We start with a capital market simulation, which simulates the Treasury yield curve, equity returns, inflation, and general wage increases. It will simulate the Treasury yield curve each month, going forward into the future for a period of 30 years. So we'll have a simulated path that is 30 years long, with monthly simulations of the Treasury yield curve, general wage increases, equity returns, and inflation. Then we'll do 700 of these paths, about 400 independent paths across. So the capital market simulation consists of 400 independent paths across, each one 30 years long, with monthly simulations of those financial variables.

We will then simulate the liabilities. We start with current demographics and benefit formulas. We drive the wages forward by what happens in the capital market simulation to general wage increases. We then discount the projected benefit cash flows back by the valuation discount rate, which could either be fixed or tied to what happens in the capital markets, say to long bond yields. We simulate the liabilities once a year for the 30 years. We have the same 400 paths, each 30 years long, with annual calculations of the liabilities.

We then simulate the assets. To simulate the assets, we need to define the investment strategy that we're going to examine. What defines an investment strategy is the amount of equities and fixed income, the interest sensitivity or duration of the fixed income, and how you rebalance your mix as the capital markets and other events change the plan circumstances. Once the strategy is defined, you can calculate, based on what happens in the capital markets, what each investment mix will return for that period, and therefore, what the assets are at each point of time. Once a year, we'll go through a full actuarial valuation to calculate what the

contribution requirements are. We put the contributions back into the assets and then continue going forward.

Finally, we calculate the impact of the contributions and surplus in each path on the corporation. Essentially, that means taking out the tax deduction from the contributions and discounting the stream of contributions that have to get paid and the after-tax surplus by the after-tax borrowing cost of the corporation to get back to a present value of future contributions, net of the value of terminal surplus.

Starting with the assets-only framework, I won't go into all the historical reasons of how it actually emerged. The best rationale that I've heard for why it works is one that assumes an augmented balance sheet. It assumes that you can put the pension plan onto the balance sheet of the corporation. In other words, look at the corporation as a T-account, consisting of corporate assets and corporate liabilities. The pension assets are simply part of the corporate assets, and the pension liabilities are part of the corporate liabilities. In other words, you look right through the pension trust; the pension assets and liabilities belong directly to the corporation.

In that framework there's no reason to tie the pension assets to the pension liabilities. The corporation doesn't do that with any other assets or liabilities. It simply looks at its whole asset structure, its whole liability structure. There is an asset-liability problem, but it's the corporation as a whole, it's their entirety, not the pension assets versus the pension liabilities.

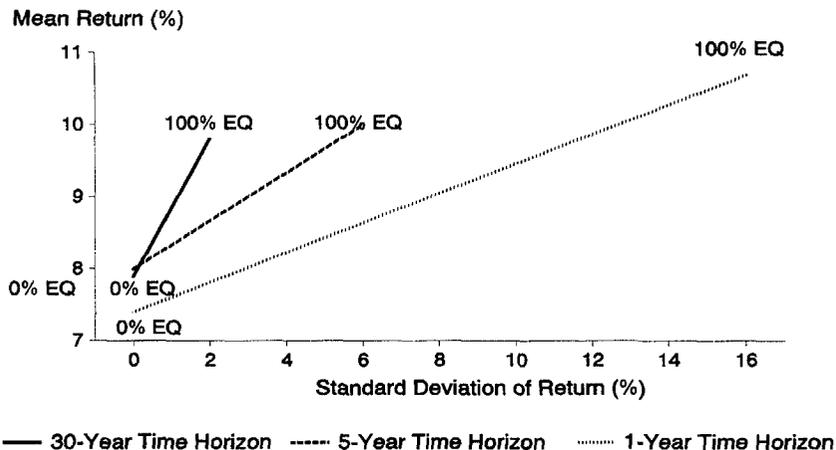
In that world, you may well come out with the answer that the best way to invest the pension assets is simply to maximize return on those assets for some volatility that the corporation's willing to accept.

What's wrong with that framework is that the corporation cannot, in the real world, look through the pension trust. It cannot get its hands on the pension assets. To get its hands on the pension assets, it has to terminate, it has to pay the cost of buying annuities, and it has to pay a huge excise tax. I believe that this is a fatal flaw for this framework; however, the vast majority of corporations are still using this framework.

The objective under this framework is to maximize wealth versus risk over a specific time horizon. The important part of Chart 1 is to show that the efficient frontier rotates as the time horizon lengthens. If you have a very short time horizon, in this case a one-year time horizon, there is not enough time for equities and high-risk assets to generate enough wealth or return to pay for the risk. So if you only have a very short time horizon, say one year, it tends to push you toward cash. Alternatively, if you have a very long time horizon, if all you are interested in is, say 30 years time, what is the wealth going to be 30 years from now? Over 30 years, equities have such a high probability of outperforming fixed income, and they are expected to outperform by such a huge amount, that the efficient frontier rotates, and it is very hard to justify anything other than 100% equities. So the answer is quite dependent on the time horizon that you pick.

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CHART 1*
Asset-Only Framework
Asset-Allocation Result



Now, switch to the asset-liability framework. Under this framework the corporation views the pension plan as a subsidiary. The pension subsidiary now consists of pension assets and pension liabilities, and what you're trying to optimize is the value of that pension subsidiary. FASB is one of the main users of this rationale, because SFAS 87 implicitly uses this rationale. The income amount or expense going on the financial statements of the corporation reflects the earnings on the assets even if the assets are in excess of the liabilities. This tends to build up an asset on the balance sheet that is artificial, in that it can never be realized by the corporation at the value reflected. What is wrong with it is that the subsidiary, from the corporation's perspective, is not equal to assets minus liabilities because it can't get its hands on the assets. The way the plan sponsor experiences the plan is quite different, and we'll get to that a little later.

In this framework the objective is to maximize the surplus in the pension plan or to maximize the funded ratio subject to the risk tolerance of the corporation. Once

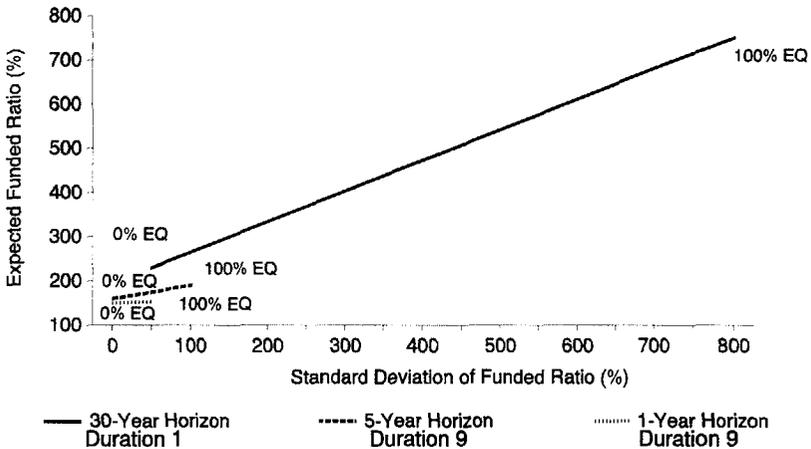
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again, the time horizon is very important. The key difference between an asset-liability framework and an asset-only framework is in the riskless or low-risk asset. The low-risk asset in an asset-liability framework is a very long-duration liability-matching portfolio of bonds.

If you have a very short time horizon, e.g., if you know you're going to terminate your plan six months or a year down the road, it won't pay to invest in equities. This is because the expected additional wealth that you may generate with equities is going to be low over a one-year period, relative to the risk, the high 15% standard deviation.

On the other hand, if you only have a 30-year time horizon, (see Chart 2), if all you are interested in is what the funding ratio is going to be 30 years down the road, the efficient frontier rotates, because again, equities are expected to outperform the liabilities over 30 years by a large amount with a very high degree of probability. So again, it would be hard to justify anything other than 100% equities if you only had a 30-year time horizon. Once again, it's very difficult for a corporation to pick the right time horizon.

CHART 2
Asset/Liability Framework
Asset Allocation Result



I am now going to switch to what I believe is much closer to the real world. It is an asset-liability-sponsor framework. Who are all the stakeholders to a pension plan? And what piece of the pension plan do they own? I'll start with the corporation and use simple T-accounts to show the situation. The corporation has corporate assets on the asset side and corporate liabilities on the liabilities side. With respect to the pension plan, it has a number of asset and liability items. On the asset side it owns a call on the pension surplus. On the liability side it has the present value of future contributions. It has to make future contributions to keep the plan going. The

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present value of those is a liability to the corporation. It has the present value of the future PBGC premiums. It has a potential liability to the PBGC, which owns a contingent call on its net worth. If the corporation exercises its call on the surplus, then it has to pay an excise tax on reversion. The key objective is to maximize the values or minimize the cost of all those items taken together.

If you look at the pension plan itself, every piece of the pension plan is spoken for. Basically, every asset is somebody else's liability, and every liability is somebody else's asset. First, consider the asset side; it has the pension assets. It also owns the present value of future contributions that the corporation is going to pay. It owns a put to the PBGC, should the corporation go under and leave an underfunded plan (it can put those liabilities to the PBGC for the guarantee portion). On the liability side it owes three tiers of benefits.

First, as a liability, it has the present value of the guaranteed benefits, i.e., the PBGC guaranteed benefits. And that liability is essentially an agency guarantee. It has the full credit of the federal government. It also owes the present value of the difference between the accrued benefit and the PBGC benefit to the participants, and that liability has the credit rating of a highly collateralized corporate bond. It's collateralized by the assets in the trust. The collateralization is enhanced by the way that assets get allocated in a plan termination. Also, as a liability, there's the present value of future benefit accruals. The future benefit accruals are an uncollateralized debt. They have the credit risk of unsecured corporate bonds. Finally, the corporate call on pension surplus, i.e., the ability of the corporation to revert surplus, is a liability of the pension plan.

The other key stakeholder is, of course, the participants. The participants own all the liabilities that the pension plan owes. The present value of the PBGC guaranteed benefits, the present value of the accrued benefits, minus the guaranteed benefits, which are highly collateralized and are the benefit that are mainly at risk, is the present value of future benefit accruals.

The last two major stakeholders are the PBGC and society. The PBGC owns as assets the present value of the future PBGC premiums, the call on the corporate net worth that it owns and a call on society (general tax revenue if the rest of its assets prove insufficient). As liabilities, the PBGC owes the guaranteed benefits in the event a plan is put to the PBGC.

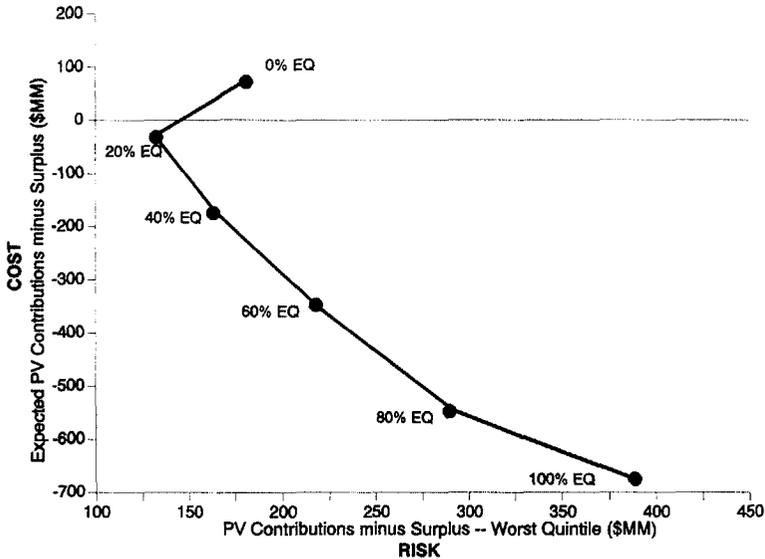
Finally, society owns the excise tax if the corporation reverts surplus and has a potential liability in respect of the PBGC liabilities.

Let's go back to the corporation and focus on its major objectives. The objectives are to maximize the value of the call on surplus minus the present value of future contributions. We're going to consider three cases, because it turns out in this framework that the access to surplus is very important and often overlooked. First, we consider the case where the corporation has total access to surplus. We disregard the excise tax on reversion rules and the possible worsening of that tax and assume that the corporation could, in fact, get its hands on the entire surplus. Second, we consider present rules. That is, the corporation can get hold of surplus, but if it does, it has to buy annuities, and it also has to pay an excise tax of 20%.

Finally, we're going to look at what the situation would be if the corporation couldn't get the surplus at all, if in fact, all it could get was the contribution holiday when the plan was overfunded.

The answer that you get when surplus is fungible (i.e., it can be recaptured in full) is shown in Chart 3. It's quite dependent on the plan specifics and how well funded it is and also on the borrowing cost of the corporation. The plan illustrated is a well-funded plan. It's in a full-funded limit. And as you can see, if it can get its hands on the surplus, then the appropriate asset allocation can lead to very high equity exposures. Note that in a well-funded plan, the present value of the surplus really outweighs the present value of the contributions, as you'd expect. Essentially what's driving the asset allocation is the big surplus that the corporation is going to be able to get its hands on down the road.

CHART 3
 Asset/Liability/Sponsor Framework
 Asset Allocation Result
 Surplus Fungible



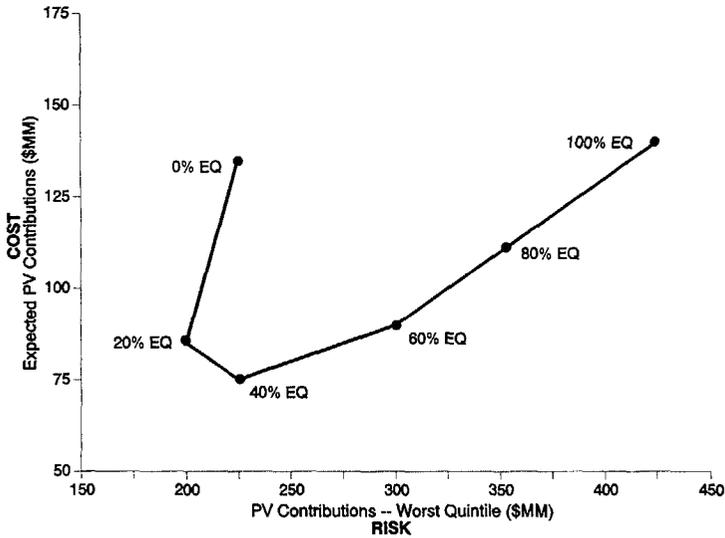
There's quite a large windfall in terms of the additional surplus minus the contributions. On the first axis is expected present value of contributions minus surplus, so a negative number means that the surplus is much greater than the contributions. On the vertical axis is the present value of contributions minus surplus in the worst quintile, the worst 20% of scenarios. We've done 400 scenarios, so those are the worst 80 scenarios. And that risk-return trade-off justified a generally high equity exposure.

We're now going to look at where the corporation can't get its hands on the surplus at all, where the surplus is not fungible to the corporation (Chart 4). All it gets is the

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lower contribution, the contribution holiday that arises as the funding limit is extended further and further out into the future. In that situation, the present value of contributions is the key, because there's no minus the value of surplus. And it pushes for much lower equity exposures.

CHART 4
Asset/Liability/Sponsor Framework
Asset Allocation Result
Surplus Not Fungible: Case 1 -- No Surplus on Reversion



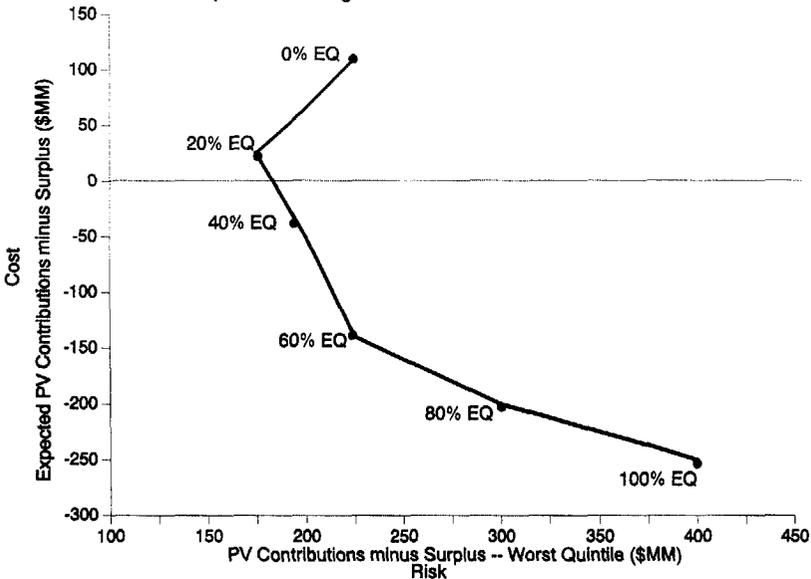
By the way the bond exposures, in this framework, are always the same as in the asset-liability framework: a long bond duration, much longer than what most people have. The efficient frontier ranges in this particular case from 20% equities to 40% equities. It's interesting to understand just why that happens, why 60% equities is not on the efficient frontier. In this framework you get an interesting trade-off between fixed income – liability-matching bonds – and equities. Equities get the contributions down in the long run, but only at the cost of increasing the contributions in the near term. Note that they increase the contributions, and not just the volatility of the contributions, because of the asymmetry in the contribution calculation. If you're in a full-funded limit and you get a big gain in equities, your contributions stay at zero. They simply stay at zero for a longer period, but the present value of that to the corporation is less and less, the further out that period is pushed. On the other hand, if you come out of a full-funding limit, you have to pay the contributions right away. Also, the contributions go up very fast as your funding status goes down, especially when you drop below 100% funding when you have to pay deficit-reduction contributions. So you're always trading off the savings in contributions that you get in the long run, versus the additional cost of contributions in the near term. As you add each piece of equity you reach a point where, as you add the next bit of equity, the savings in the long run are less than the additional cost that you get in the

near term. That's why it pushes toward less equity in a present-value-of-contributions framework.

Fixed income locks in the contributions in the near term. With a properly designed portfolio you can be 99% confident that the contributions next year will be confined within a very narrow range. The following year you can be 97% confident. You're trading off those two features.

As you'd expect, if you can get some of the surplus back, (see Chart 5) (and this is the situation under current rules), where you first have to pay some part of the surplus to buy annuities, and then you have to give up a big part of the surplus, the excise tax, and you get the rest of it back, results ought to lie somewhere in between. Again, in this specific case, because it's a fairly well funded plan, the efficient frontier allows for quite high equity exposure, but the risk-return trade-off is much worse than in the earlier case that we saw. They had to give up a lot of risk to get an additional present value of surplus minus contributions.

CHART 5
 Asset/Liability/Sponsor Framework
 Asset Allocation Result
 Surplus Not Fungible: Case 2 – Reversion Rules

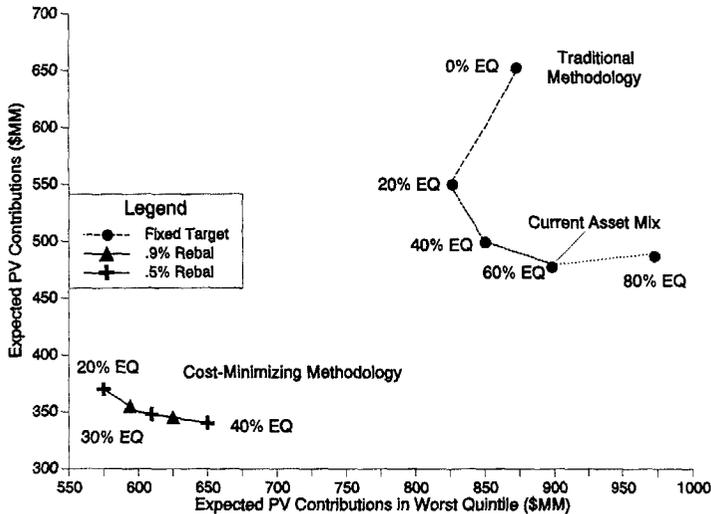


Finally, I'm going to look at a specific case again in terms of the savings that you get if you move away from the traditional approach to asset-liability management, which is simply managing the assets on their own, and move to this asset-liability-sponsor framework (Chart 6). Again, on the vertical axis is the expected present value of contributions. On the horizontal axis is the present value of contributions in the worst quintile. The top right-hand graph is the efficient frontier that you get in this framework, based on traditional methodology. Traditional methodology is valuing the

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liabilities by using a stable discount rate, in this case it was 8%, and having an asset mix that consists of fairly short-duration bonds. In this case it was roughly the Shearson index, a six-year duration portfolio, and using a five-year averaging method on both the equities and the fixed income. And in that world, this particular company's mix was the traditional 60% equities, 40% fixed-income mix. The cost of contribution was about \$500 million, with a risk measure of about \$900 million.

CHART 6
Example of Bottom-Line Savings and Risk Reduction to Corporation



Merely by switching to what we call the cost-reducing methodology, you get the cost of contributions way down. It measures liabilities based on market rates; that is, marking the liabilities to market and designing the assets to move in tandem with the liabilities. In other words, it is a much longer bond duration, measuring bonds at market value, not smoothing their returns, but still using a five-year moving market average with the equities. You also needed, in this specific case, a somewhat lower equity exposure. At a 30% equity exposure the cost of contributions comes down to \$350 million and the risk to a little over \$600 million, which is a generally significant reduction in cost.

What worked best of the methods tried was a rebalancing rule of 0.5%. For every 1% increase in funded ratio that it experienced, the company should increase its equity exposure by 0.5%.

FROM THE FLOOR: You run into a concern that this is such a volatile area, that trying to speculate on what we have now is really irrelevant. How much detail do you get into with regard to PBGC interest rates being low or not all benefits being guaranteed? It can be involved if you really get into the details of the PBGC.

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MR. PESKIN: Fortunately, you don't have to get into the details of the PBGC. I went into the details on the T-accounts to address some questions that occasionally crop up, like what about participants or something like that. If you focus on it from the corporation's perspective, on present value of contributions, including PBGC premiums, the only PBGC item that is of any significance is the PBGC premium.

FROM THE FLOOR: So all that you had about T-accounts, that you thought through, is really just background to get to your answer, and it doesn't really impact the answers.

MR. PESKIN: That's correct.

FROM THE FLOOR: In your methodology, you vary the interest rate each year to some market interest rate. That is, the valuation interest rate is varied, it is marked to market. What do you do with the salary scale? And what effect would varying the interest rate have on the salary scale?

MR. PESKIN: We vary the salary scale as well. Historically, roughly 70% of the changes in interest rates are explained by changes in anticipated inflation. Anticipated inflation is the same on the liability side as on the asset side, of course, and therefore is embedded in the salary increase assumption that actuaries make. So, we assume that 70% of the change in interest rates also goes into the change in wages. The reason for floating the economic assumptions is to enable better asset-liability matching. If you mark the liabilities to market, it makes the liabilities volatile and therefore that doesn't have a natural appeal to actuaries. They like keeping things stable. It does allow you to design the assets so that they're going to move in tandem with the liabilities, and it's that net result that is desirable. The economics are based on the gap between assets and liabilities, not on the liabilities alone and not on the assets alone.

I'll introduce Arnold briefly, though he probably doesn't need much introduction. He has spoken at several of these conferences. Arnold has been a consulting actuary at Buck Consultants for many, many years. He has focused on this area for many years. He has a lot of wisdom on the subject that we hope he will impart to us.

MR. ARNOLD MARK DE MONTE: My appointed topic is to explain why we can't sell any of these to our clients or convince them that what we're doing is worth anything. And, I have to tell you, I can't understand why Mike can't sell any of them. And I'm not going to attempt the answer to that question, but he can actually. He's sold a few. But I do have an answer for you that's somewhat different than Mike's and that is what I'll start with.

I think it's a temptation in every walk of life to project the immediate experience on the long-term future. And it's a danger. As Mike said, I've been in this for longer than I care to remember. If we review the last 15 years of economic experience in the country, we've been through different periods, which on the legend of the view of the day was that the current environment was going to last forever. In the 1970s, we were always going to have high oil prices. In the early 1980s, we would never get rid of inflation, and the Japanese would drive us out of business. In the 1990s, we have high unemployment, and our children aren't going to live as well as we do.

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There is this temptation in the popular press, and unfortunately, it leaks over into professional thought, that you can project into the far distant future based on very recent experience. I think that's a temptation that we ought to avoid in the professional ranks. The professionals might start looking at capital markets and particularly at the relationship between capital markets and the economic environment. We'll find a surprising amount of stability in those relationships. And even though the capital markets are quite volatile, the relationships that connect capital markets and economic environment are actually quite stable.

And that's why we don't say we can predict the future, but we can forecast on a statistical basis with some high level of confidence. And that's why models that Mike might build, or that we might build, or that any other actuarial firm with a fair degree of expertise on statistical analysis might build, are good models for forecasting pension results. The upshot of it all is that regardless of the model you build, the results we get out of this modeling do not differ too much from client to client and from actuarial firm to actuarial firm. So I think the answer is to be careful when making long-term projections based on current environment.

FROM THE FLOOR: We have this one gigantic change. We are now the biggest debtor nation in the world, and going back over almost the entire modern period, we were previously a major creditor nation. That seems to me to be potentially a major harbinger of change with regard to the long term.

MR. DE MONTE: You may be right. It could very well be that this is the point of departure, where we are no longer going to experience the past, as we are used to it. I disagree with you on that, but I'm not going to get into a debate. The point is, if you believe that and if your client believes that, then there is no sense in doing this kind of modeling. This kind of modeling is based in part on the notion that at least, statistically, the future is well represented by the past. So I think you just dispose of that and try to serve your client in another way.

MR. PESKIN: I'd also like to comment on the question. We're not actually saying that the past is going to repeat itself. The capital markets keep changing the prices on these instruments. Our best guess as to what interest rates are going to be is what the market is currently predicting that they're going to be, and that's not the same as they were three years ago or five years ago. It's constantly changing. A number of very bright, educated people are putting a lot of money on the line every day, in terms of what they think the future is going to bring. The bottom line of where they agree or disagree sets market prices. If you think that the numbers are different from what their guess is, you have the opportunity to really gain big on it, by investing in such a way that is different to market prices. You keep buying until the price goes up to what you think it ought to be or keep selling it until it goes down to what you think it ought to be.

MR. DE MONTE: Mike's argument is essentially that we have a large trade imbalance, as you say, already built into the capital market prices. That being said, I think it's fair to observe that in my experience, most of my clients think they have fundamental insights on the economy that are not built into the models we use. And one of my jobs as a consultant for pension investing is to disabuse my clients of the notion that those fundamentals should be entered into the modeling we do. To

include those fundamental notions into the modeling skews the results in a very predictable way and gives us results that we don't recommend as consultants. If you have a client who has very fundamental notions that the economy, and at least the financial markets, are going to behave in a way fundamentally different than the statistical model that any one of us might build, it really isn't worth it to go through the whole process of doing an asset-liability study that is going to be rejected anyway. You're better off serving your client another way, pointing out the clear choice based on the fundamental analysis. You find that once you've identified that clear choice, often your client will be hedging his own bet.

Why has it been difficult for investment consultants, and actuarial investment consultants in particular, to sell the notion of asset allocation in a way similar to what Mike has presented? All the actuarial firms and all the investment consulting firms don't do exactly what Mike does; that is, there are different views as to the way to set up those balance sheets. There are different notions as to what the liabilities are that should be targeted for surplus. In Mike's case, you can almost argue that surplus is not the key issue. Because it's generally viewed as not being fungible.

MR. PESKIN: The client picks the weight to attach to surplus fungibility.

MR. DE MONTE: Yes. In addition, your surplus is usually defined, I take it, relative to the marked to market actuarial liability. I've done studies where we've marked surplus to accumulated benefit obligation (ABO), or termination liability, or projected benefit obligation (PBO). Again, it's generally up to the way that the client views the circumstances. Usually the choice of liability corresponds closely to the events that the client thinks is likely to occur in the near distant future. For example, if clients see mergers and acquisitions as likely future events, so that surpluses can be used to offset underfunded plans that are going to be merged, that generally entails one treatment of the pension surplus. On the other hand, the notion of a terminating plan or frozen plan entails another.

If one completely eliminates an event orientation from your analysis, then you're only concerned about cash-flow analysis in an ongoing plan, and I think you have essentially the case that Mike has presented.

But I'm not going to argue which of those is the best way to go, or if in fact, there is a best way to go. I'm talking about a broad range of investment consulting techniques that we've used and that I see used by competing firms. Surprisingly, and maybe not so surprisingly, the results of all those studies haven't been too different. That is, virtually everyone agrees that with a typical defined-benefit plan, the typical bond portfolio in a pension plan is too short a duration. That is, longer bonds are the way to go. That seems to be a standard result.

There is some debate over what the equity allocation would be. And that debate rises when plans are just at the full-funding limit. If you have a fully funded plan, it's hard to construct scenarios in which stocks do not benefit you in contributions, even over the very short run. And if you have a very well funded plan in which you're well over full funding, again, the likelihood of having to make contributions due to poor experience is minimized by the size of the surplus.

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On the other hand, if you're right at the full-funded limit, the problem is you go out of a full-funding status with very small differences in investment experience. And how you treat the value of surplus against the value of the contributions you might have to make in the short run, if experience is bad, weighs heavily on whether you think you should have a large or small stock allocation. So that case aside, the results we come up with in these studies are not all that different. That is, philosophically, we're all generally close together. So the consultants are close together, at least those who I dine with, but our clients really haven't come on board, even though there's been a substantial amount of literature. The *Financial Analysts Journal* in the late 1980s was filled with articles discovering ways to optimize the surplus. Even Mike had an article or two that I read. So it isn't as if the information isn't available. So I want to speculate as to why I think we have this difficulty.

I think the difficulty is the same difficulty that the Brookings Institute has recently written about with regard to investment managers. And that is, there is an agency problem in the way pension assets are invested. And by that I mean there are agents who are principally interested in the results of the study and the results of asset performance, who are responsible for asset-allocation decisions or money manager selection, but whose self-interest is somewhat slightly different than that of the clients they represent. And by clients, I'm even talking about a pension officer who represents upper management or a board of directors. I think that's the principle problem we have in consulting in general on investment. And my experience has been that the pension officers we deal with like to take long-term views with regard to the pension plan. They generally come on board well informed as to what we do. Why? Because we send them literature. Because we try to sell them asset-liability studies. Because we show them all the studies we've done and we talk to them. They are our everyday contacts. And they agree that we ought to move in the direction that all of us experts believe they ought to move. The problem is they are dealing with upper management. And upper management, unless they have a member or a board of directors who has seen the study like this, will tend to have a much shorter time frame, a specific purpose to which they think their asset allocation ought to pertain.

That's why the asset-only approach still takes hold. Investment returns are important to upper management and board members, whereas you can make the more difficult arguments with regard to surplus stability and contribution stability and present value of contributions to the pension officer, who is directly in charge.

The pension officer actually makes the asset-allocation decision by hiring money managers. That principle decision probably determines the return and volatility on the pension portfolio. And that decision is fraught with risk, for the managers job for the pension officer's job, as well as the consultant's role in providing information at a fee to the pension officer.

FROM THE FLOOR: This intensely practical question is directed to Arnold. You mentioned in passing that there's general agreement among the various firms that do these studies that in the standardized plan, bonds are not long-term enough, that they tend to have bonds that are too short-term. I'd like you to elaborate on what is not standardized. I assume that one example would be a very old population with many retirees. But are there other situations where your general comment doesn't fit? This may be a set-up for some of your case studies that you were going to talk about.

MR. DE MONTE: There are, for example, cash-balance plans where benefits are in some way related to market experience. Obviously, the allocation is going to be affected by that fact. I think you have to look at it yourself, because I'm not clear on it myself. But that's an example where you might alter your asset-allocation decision. A plan, which by plan provision, purchased annuities at retirement, you have to look at it carefully. Look carefully at plans that offer automatic cost-of-living increases. Lump sums are the same thing as buying annuities, especially if the capitalization rate for lump sums is not as sensitive as the interest rate that was used to value FASB liabilities. There's a wide range of nonstandard cases. But even in most of those cases I would bet we would find that bond portfolios are too short in duration.