

WEATHERING THE FINANCIAL MARKET STORM ON PENSION PLANS

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This session will cover the current interest rate environment, the outlook for interest rates and fixed-income return, the outlook for equity returns—domestic and foreign—and the financial strategies based on a plan's funded status.

MR. MARTIN LEVENSON: My credentials for leading this session flow from the fact that, as an employee of the Segal Company, in recent years I've really been devoting substantially all my time to the investment-related consulting portion of our practice. In the course of doing that, I have obviously run into many issues and considerations that are relevant to the agenda of this particular session.

This is described as a teaching session. In the course of dealing with my consulting audiences, I'm used to getting lots of questions, responding to challenges, and responding to comments that people have to offer. My hope is that that's the kind of interchange we'll be able to have here during this session.

Many people think of investment issues as being driven by specific numbers, and that's not the school that I belong to. I think that we're involved with considering trends and considering the logic and common sense of what's going on with regard to both the development of plans and developments in the security markets that will have an impact on how investment programs are put together.

As you know, this session is part of a one-day agenda that began with the session on actuarial assumptions. The day will include two other sessions dealing with asset/liability matching, and finally a wrap-up session that includes conversation on almost anything with regard to investment programs. I'm going to try to avoid overlapping on some of the materials in those other sessions. If you have questions that get into those areas, again, please don't hesitate to raise them.

Basically, the focus here is going to be on how plans and markets have developed and on issues that need to be addressed on an ongoing basis to make pension fund investment programs responsive to changing conditions and alert to the kinds of risks that are developing and always changing in the investment markets. The notion of having a full day's worth of sessions on investment-related matters, I think, is something that's fairly new to actuarial meetings like this. Certainly if you went back 10 or 15 years, I don't think you would have found that kind of program.

In connection with pension funds, in particular, I think there's really a good deal of logic to it. When a pension fund is started, there are no assets in hand. There generally would be substantial projected liabilities. There may even be some significant accrued liabilities where plans have been generous in recognizing prior service, but there aren't any assets that you have to worry about. That gives you a free hand in terms of developing assumptions and developing actuarial procedures with regard to investment and economically related matters that can rely on long-term historical analysis without focusing on the specifics of what's actually going on in the particular investment program.

Well, times have been changing and now, for the most part, we're not looking at brand new defined-benefit plans. We're looking at plans that are well on the way to being mature in a variety of respects. The logic of having actuaries pay more attention to what's actually occurring in investment programs and being able to interpret its significance in carrying out actuarial cost calculations, and the various other things that actuaries do, I think, is evident.

One of the things that the Segal Company does as a way of getting a handle on long-term trends and what's actually happening in its clients' benefit programs is by taking a look at actual emerging experience in a variety of ways. The Segal Company's clientele includes a substantial number of multiemployer Taft-Hartley type funds. We've been looking at data with regard to those programs for about a decade now in a fairly systematic kind of way. We've put together a universe that currently has approximately 450 different multiemployer defined-benefit plans in it.

Those plans have on the order of three million participants. It's a well-diversified body of data in the sense that it's geographically diversified around the country and it's well-diversified in terms of industry or craft that the employees represent. The universe has been surprisingly stable in some respects over the last decade. You go back ten years and there are just about the same number of plans that are included, although the names of the plans have changed some.

What's not surprising is there have been plan terminations and plan mergers, clients lost to other circumstances, and obviously, new clients were added over the course of that period of time. But the number has stayed fairly stable and the number of participants has stayed fairly stable as well. But there are things that have changed and in some cases changed significantly.

The composition of the number of participants is quite different than it was a decade ago. There are significantly fewer actives and there are significantly more pensioners and beneficiaries. That should not come as a surprise to you. The cash-flow characteristics of the plans are significantly different and related to the circumstances I described with participants, but reflect other things as well. Going back ten years ago, these funds had a fairly substantial positive cash flow from contributions in excess of benefits and expenses. That is no longer the case. This universe now has a negative cash flow and investment income is being used to help pay benefits.

Nonetheless, assets have changed dramatically over that period of time. They've about quadrupled going from \$16 billion to \$64 billion. Now, the data that I'm describing to you is data that came from actuarial reports that were prepared in 1993, reflecting valuation dates in 1992 and I guess early 1993. So it's not quite up to date and my hunch is that if we looked at current figures, the asset values will be higher because 1993, as you know, was another strong year in the investment markets for both stocks and bonds. What's happening in the investment markets is driving the valuation of these pension fund portfolios. The funds are well-funded.

One of the things that we take a look at is the relationship between the market value of assets and the vested benefit liability for withdrawal purposes. The average funding ratio on these plans is better than 95%, which actually represents a fair improvement over the full decade, although the funding ratios have really been high

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throughout the period. Those funding ratios weren't accomplished by failing to make benefit improvements. If you look at this universe of plans over the period of time, you will find that year in and year out, about 50% of the plans make some kind of benefit improvement.

It has really been an extraordinary period of years in terms of how these plans have changed—dramatically more assets in hand, a significantly different cash-flow situation, ability to make substantial improvements of benefits, and all during a period of time when contribution income was weak because of disappointing employment opportunities and, in a fair number of cases, because contributions were diverted from defined-benefit plans to health and welfare programs, or even to newly formed defined-contribution type plans. Despite pressures, we've seen really dramatic events over this period of time in terms of investment related characteristics for these programs.

We think that those changes in asset size and cash flow are going to continue to have a significant impact on how the investment programs are put together and on the results that they're likely to achieve. That brings us, I guess, to the topic of this session: Weathering the Financial Market Storm on Pension Funds. Now, I didn't choose that topic. I'm not sure who did. I think I like it because it's so ambiguous and unclear in many respects, that we can talk about it from a whole variety of different angles.

It's not clear whether the focus here ought to be on the plan sponsor's perspective, on the perspective of the plan participants, or even on the perspective of the actuary, who clearly has been significantly impacted by what's happening to defined-benefit plans over the course of the past decade. We've seen significant reductions in defined-benefit plans, reflecting a wide variety of factors.

Administrative complexity and the cost of running a defined-benefit plan clearly have been significant contributors. Employer financial risk associated with a defined-benefit plan design is something that frequently comes into play. Changes in the character of the work force have made it plausible, in many cases, to introduce defined-contribution type programs.

Finally, the fact that inflation has been a moderate factor over the course of the past decade has clearly been a contributing factor in the sense that pressures for benefit increases have been somewhat diminished.

I want to raise a variety of questions about the issue of whether there has been a financial storm. In order to get a handle on that, I think it is necessary to look at some numbers (see Table 1). The tables I will be using are taken from *Statistics for Pension Actuaries*, published by the Society of Actuaries' Committee on Retirement Systems Practice Education and the Pension Section, Tables 15B and 15D, April 1994. There are many other interesting tables in this book as well, and it may well be that you'll want to refer to them either as a consequence of some of the discussion here or in relation to other matters that you'll be dealing with.

In any event, Table 1 provides nominal annual rates of return over an extended period of years for a variety of different types of securities. For purposes of this discussion,

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we're really going to focus just on domestic stocks and bonds, which clearly represent the lion's share of pension fund assets during the early part of the last decade and during the early years of the first long period from 1926 to 1940. In more recent years, these stocks and bonds are still the dominant factor, but perhaps not quite to the same extent.

TABLE 1
ANALYSIS OF NOMINAL RATES OF RETURN

3-Month Treasury Bills								
	1926-40	1941-51	1952-65	1966-81	1982-92	Last 25 Years	Last 10 Years	All Years In Table
Compound Rate	1.42	0.69	2.68	7.30	7.67	7.66	7.28	3.95
Arithmetic Mean	1.43	0.69	2.68	7.34	7.69	7.70	7.29	4.01
Standard Deviation	1.64	0.48	0.89	3.21	2.28	2.83	1.96	3.54
Non-U.S. \$ World Bond Index								
	1926-40	1941-51	1952-65	1966-81	1982-92	Last 25 Years	Last 10 Years	All Years In Table
Compound Rate	N/A	N/A	N/A	N/A	13.47	N/A	13.63	11.18
Arithmetic Mean	N/A	N/A	N/A	N/A	14.37	N/A	14.61	12.04
Standard Deviation	N/A	N/A	N/A	N/A	15.23	N/A	16.03	14.61
Long-Term Government Bonds								
	1926-40	1941-51	1952-65	1966-81	1982-92	Last 25 Years	Last 10 Years	All Years In Table
Compound Rate	5.57	0.79	1.19	1.30	15.62	7.72	12.91	4.37
Arithmetic Mean	5.85	0.87	1.32	1.55	16.66	8.53	13.67	4.83
Standard Deviation	7.77	4.22	5.36	7.51	16.45	14.08	13.84	10.31
S&P (500) Composite								
	1926-40	1941-51	1952-65	1966-81	1982-92	Last 25 Years	Last 10 Years	All Years In Table
Compound Rate	3.51	13.65	14.51	5.85	16.55	10.46	16.08	10.05
Arithmetic Mean	8.01	14.65	15.85	7.34	17.11	11.67	16.68	12.07
Standard Deviation	31.15	15.52	18.47	18.15	11.88	16.27	12.43	20.57

If you take a look at the information with regard to long-term bonds and scan your eye across the very first line there showing the compound annual rate of return for various cumulative periods, what you see is that there are a string of three cumulative periods, 1941-51, 1952-65 and 1966-81, where the annual rate of return on long-term government bonds ran about 1% per year. That's an extraordinarily disheartening kind of number.

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On the other hand, during the period that included our country's Great Depression, the rate of return on bonds is better than 5.5% per year. The number that leaps out most from this table, of course, is the rate of return on high-quality bond investments from 1982 through the end of 1992 of 15.6% per year. Well, that's an off-the-wall kind of number in terms of historical precedent. We simply have not had rates of return like that on bonds. You know, as well as I, that the reason for that lies in the very substantial reduction in interest rate levels from their peak back in 1981.

Since that period of time, it has been possible with high-quality, diversified bond portfolios to produce truly dramatic annual rates of return. If we added 1993 into the end of this period, it wouldn't change the numbers any. The rate of return in 1993 on long-term government bonds was right around 15–16%.

The figures on the bottom portion of the page deal with the Standard & Poor's (S&P) 500 stock index, which is a reasonable proxy for what's going on in the stock market. We'll talk about some aspects of those numbers later, because I think they may cast a bit of a different light on how these numbers are understood. In any event, if you take a look at these S&P figures over that same span of time, we are, for the full period, looking at a significantly higher rate of return than was provided by the bonds—10% per year as opposed to slightly more than 4% per year as shown in the far right-hand column.

For cumulative periods, 1982–92 was again a very successful period for stock investors, but it wasn't an absolutely unprecedented period on the common stock side. There have been other extended periods of time in which common stock returns, as represented by the S&P 500, have produced results or rates of return in the mid-teens. These figures are very strong, but perhaps not unprecedented for periods like a decade. The periods that show disappointing numbers for the common stock portion of the programs are the Depression period with a 3.5% annual return and the years from 1966 to 1981 when the return was just shy of 6% per year.

Well, traditional balanced portfolios combine the stock and bond figures in various mixes. If we don't get too fancy here, I think you can see that the potentially disappointing periods are the 1926–40 time frame and the 1966–81 time frame where the annual rates of return would certainly have been significantly lower than the rates that actuaries are currently using as actuarial assumptions with regard to future experience.

Does either one of those periods represent a financial storm? I'm not sure. Let's take a look at Table 2, where, instead of focusing on nominal rates of return or total rates of return we can look at real rates of return over the rate of inflation. If we cast an eye at those two specific, potentially disappointing time periods that we've been talking about, what we find is that the era of the Depression, when we actually had deflation, was not as bad as it appeared to be on a nominal basis; however, for the period from 1966 to 1981 we were living with significantly advanced rates of inflation averaging about 7% per year over that full span of years—this is strikingly higher than the 3% a year that inflation has averaged over the full period from 1926 to date.

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TABLE 2
ANALYSIS OF REAL RATES OF RETURN (NET OF CPI)

3-Month Treasury Bills								
	1926-40	1941-51	1952-65	1966-81	1982-92	Last 25 Years	Last 10 Years	All Years in Table
Compound Rate	3.04	-4.92	1.34	0.27	3.71	1.67	3.34	0.79
Arithmetic Mean	3.16	-4.80	1.35	0.29	3.73	1.71	3.35	0.88
Standard Deviation	5.02	4.85	0.79	2.13	2.12	2.81	1.80	4.33
Non-U.S. \$ World Bond Index								
	1926-40	1941-51	1952-65	1966-81	1982-92	Last 25 Years	Last 10 Years	All Years in Table
Compound Rate	N/A	N/A	N/A	N/A	9.30	N/A	9.46	5.22
Arithmetic Mean	N/A	N/A	N/A	N/A	10.22	N/A	10.47	6.24
Standard Deviation	N/A	N/A	N/A	N/A	15.19	N/A	15.99	15.50
Long-Term Government Bonds								
	1926-40	1941-51	1952-65	1966-81	1982-92	Last 25 Years	Last 10 Years	All Years in Table
Compound Rate	7.26	-4.83	-0.12	-5.33	11.37	1.72	8.77	1.20
Arithmetic Mean	7.63	-4.55	0.02	-4.99	12.44	2.73	9.57	1.82
Standard Deviation	9.47	7.65	5.58	8.48	16.38	15.23	14.06	11.67
S&P (500) Composite								
	1926-40	1941-51	1952-65	1966-81	1982-92	Last 25 Years	Last 10 Years	All Years in Table
Compound Rate	5.17	7.32	13.03	-1.08	12.27	4.31	11.81	6.70
Arithmetic Mean	9.31	8.78	14.45	0.43	12.86	5.65	12.45	8.76
Standard Deviation	30.14	17.92	18.97	17.51	11.88	16.40	12.44	20.73

Clearly, we're looking at negative rates of return on a real basis over that period from 1966 to 1981. I think that might be considered to be a storm, but it's a storm that was followed by conditions that were extraordinarily healthy. On a real rate of return basis, the experience from 1982 to 1992—and even through 1993—looks even stronger on a real rate-of-return basis.

The thing that's perhaps most striking about these figures is how close the real rates of return are, as well as the nominal rates, for the stock and bond portfolios—the rates are better than 11% on the bonds and a bit over 12% on the stocks. Both numbers are dramatically higher than the 1% real return that bonds have provided over the long term and the slightly more than 6% that stocks have provided over that same extended period of time.

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What do these market index figures have to do with actual managed portfolios? Again, we take a look at a group of our client funds where detailed financial information is available. It's not surprising to find over the past decade, based on a similar multiemployer fund sample of funds, that the results are in line with these broad market indices. These investment programs for our client funds are, if anything, more conservatively organized than the broad market indices in the sense that the bond portfolios are higher quality than the broad bond market averages, although obviously not higher quality than government bonds. But that credit quality is clearly a less significant issue than the durational aspect of those securities. The intermediate term holdings, while they did very well indeed over this period of time, provided less dramatic returns than the truly long-term bonds.

On the equity side, the client portfolios again tend to be fairly similar to the market index, generally have more of a value than growth orientation and tend to be fairly stable in terms of their commitments to individual investment managers. They also tend to avoid a lot of the areas that really have been considered to be risky areas, like small company stocks and foreign securities.

The investment programs that we're looking at over this span of years are really plain vanilla kind of programs. The results over the decade are very much in line with the broad market indices that you see here. We've taken a look at experience over just the last three years in particular, because there have been a variety of developments with regard to investment programs for funds like these that raise questions about how funds should be handled on an ongoing basis.

One of the things that we want to determine is whether our results continue to be in line with the S&P 500 Index. There has been a body of thought that retirement plans' investment managers will have a difficult time in keeping pace with the S&P 500. There were periods of time where there was quite a bit of evidence to that effect. If you take a look at more recent periods, like the last three years, you'll find that investment managers on the stock side have generally been doing better than the S&P 500. The reason for that has to do with how the S&P 500 rates of return are calculated. Those rates, as they're normally published and as everybody sees them day-to-day published in the newspapers, are capitalization weighted rates of return that are dominated by what's happening with the large company stocks.

Well, for a long time, during the mid-1980s in particular, large companies were faring much better in the stock market than mid-sized and small companies. Over the last three years, that has turned around. During more recent periods, small company stocks have been doing better, because even in the S&P 500 there are more small companies than very large companies. What you find is that, in recent years, individual portfolios, which tend to be more equal weighted than capitalization weighted, are having a fairly easy time of it beating the market index. That has, I think, significant implications on how some substantial portions of our retirement fund assets are invested.

Is another storm coming? Well, we've been talking about what's happened in the past. I think no one can tell with any certainty what another storm would look like and when it would occur. I think it's reasonable to assume that pension funds currently have gotten themselves, in many cases, into a sufficiently sound position

that a brief storm won't knock them off their pins. Again, the numbers that we were looking at in Tables 1 and 2 reflect very long periods of time where there have been dramatic differences in results for mainstream kinds of investments used by retirement funds.

One of the real practical problems that investment planners have to deal with is the whole issue of investment time scale as opposed to actuarial time scale. Actuaries are comfortable in talking about what's going to happen over the next 10 years, 20 years, 30 years, and more. Pension plan sponsors would be aghast at the notion of doing their investment planning with their investment managers on that kind of a time scale.

The reality is that no one is going to sit still for a disappointing policy or a disappointing manager for a 10-year period of time. The time frame for decision making on investments is a lot shorter than that. Five years is perhaps a more typical kind of period. With the kinds of differences in results that we've been focusing on over 10- and 15-year periods, I'm sure you'll recognize that our results can differ even more dramatically over shorter time spans.

Let's talk a bit about plan characteristics and how they are going to have a bearing on investment policy making for plans in the years ahead. We mentioned to you the survey that we did focusing on cash-flow characteristics of plans and how assets have changed over the years. The reduction in contribution income that we've seen may or may not continue. That depends upon year-to-year economic circumstances, the extent of the recovery in our country's economy, and the ability of companies to afford contribution financing for their pension funds.

It is more certain that for a significant period of time we're going to be looking at significantly increasing benefit dollars. Quite apart from future increases in benefit payments, there are a variety of factors that are working to make benefit payouts greater. The basic maturing of the plan is obviously one factor. The tendency to take early retirement benefits has been a secondary factor. The extended retirement lifetimes that we are seeing is clearly also having an impact both with regard to the pensioners and their surviving beneficiaries. There are a variety of forces that have been at work that may well be at work in periods in the future; again, it depends upon economic circumstances.

With regard to the other component of income available to deal with benefit requirements, there is all the income thrown off by investment programs—dividends, interest, rent on real property, and repayments of principal from many of the securities that are in the portfolio already. We've been through an extended period of time where reductions in interest rates have had a dramatic impact on asset values. They account for the extraordinary rates of return that we've been talking about on bond portfolios, but the other side of the coin is that they give you less money in hand to deal with current benefit obligations.

The same kind of thing has happened on the common stock side of portfolios. A decade ago, we were looking at dividend yields on stocks of about 5%. Now we're looking at dividend yields that are below 3%. The result is that cash income from investment programs is down significantly. Cash income is down; benefit obligations

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are up. The cash squeeze is gradually getting tighter and tighter, which means that liquidity is going to become more of a consideration in planning investment programs.

Liquidity is a component of investment programs in a wide variety of ways. Generally speaking, neither actuaries nor plan sponsors have thought too much about liquidity as a factor in their retirement plans because they simply haven't had to. There were many resources available to deal with current obligations, but the circumstances now suggest that those resources are shrinking or have shrunk at precisely the time that the demands are likely to continue to be accelerating.

MR. GERARD C. MINGIONE: I was just going to ask you about this line of discussion, because it's an area that many clients of mature pension funds seem to be very concerned about benefit payments and the projections of benefit payments versus cash. As an actuary, I quite honestly have not shared that concern. From my standpoint, it's simply an administrative issue. Suppose, in the worst case, they had to tell all their investment managers to liquidate 1% of their assets. Even if that had to happen each month, quite honestly I don't see that it would be the problem, other than from an administrative standpoint. Could you react to that?

MR. LEVENSON: If you have securities that are readily liquidatable without being punished in the marketplace, it need not be a major problem if the demands are modest. We are talking, though, about having situations where the demands are going to be more than modest in some cases. There are funds out there that are on the brink of not growing any more; that is to say, not only is the contribution inadequate to deal with benefit payments, but also the combination of contributions and other cash income is inadequate.

We're actually going to begin to see, I think, a pattern of decreasing assets on some plans. I think that necessarily does have an impact on the perspective for investment planning. I think investment managers know that there are going to be regular or perhaps irregular cash calls on them; this is going to have an impact on how they choose to invest the monies. I think that the focus is going to shift from an approach where people could think about economic trends and long-term experience and develop optimization portfolios that imply a very long-term perspective and begin to be much more conscious about cash demands, even though there are practical ways of dealing with them.

MR. CHARLES E. DEAN, JR.: I think Jerry's thought has some merit, but there's also a psychological effect here. Asset managers must purport to add value to the investment process. Therefore, they add the value by deciding when to buy and when to sell. If there is something in liquidity that forces them to sell when they hadn't decided to sell, whether it's true or not, their position must be that it's a bad thing. I think you're going to have resistance from asset managers or complaints that any liquidity problems are affecting their ability to do what they're hired to do, which is to improve the performance of the fund.

MR. LEVENSON: Yes. I think that's quite right and I think we're already seeing a reflection of that in some investment programs. I think that, in an effort to keep values up and keep returns up, there is a temptation to take on some added degree of investment risk. Long-term bonds pay higher interest coupon rates than shorter

term bonds. There is a temptation to stretch for long maturities and the higher interest rates that they involve in order to help deal with emerging obligations without having as much pressure to actually sell securities.

The additional risk that is introduced into the portfolio is something that needs to be considered in terms of what it's ultimately going to do to asset values. I think the psychology of this really is important and leads to consideration of a whole variety of different ways of thinking about investment programs. It has been the traditional wisdom, with regard to investment policy for retirement plans, that the key factor in long-term experience is the balance between stocks and bonds, and between equities and fixed-income securities.

Think about those numbers for the period from 1982-93 that we were looking at earlier. There are real questions as to whether that, in fact, was the driving factor over that period of time with stocks providing a 16% annual return and with bonds providing better than a 13% annual return. If you take a look at balanced investment portfolios over that span of years, with asset allocations anywhere from 30% in equities to 70% in equities, there is not very much difference in the bottom line results for those balanced portfolios. They work out to be between 14% and 15% a year regardless of what that long-term policy was with regard to stock/bond allocation.

It turns out that, over that span of years, it was a more significant policy issue to be right on the duration of the bonds than it was to be right on stocks versus bonds. The difference between the stock and bond returns was about 3% per year over that span of years. The difference between intermediate and long-term bond results was close to 4% per year over that span of years. It was actually a more important issue to deal with the durational aspects of the bond portfolio than it was to be right on stocks versus bonds.

Along with the issues that we've been talking about in terms of cash-flow pressures, I think we're going to have to approach investment policymaking for plans with consideration to risks, with consideration to diversification, and with consideration to categories of securities that perhaps have not played such a large role in the past.

Inflation clearly is one of the key factors that needs to be taken into account. We've looked at the long-term figures on inflation from 1926 to date and have seen rates that they averaged slightly over 3% a year. Over the period from 1982-93, inflation is not much above that, averaging just about 4% a year, which diminished pressures for benefit increases perhaps, and provided an opportunity in the marketplace for very substantial price appreciation as interest rates gradually came down in recognition of those reduced inflation pressures.

What the future holds is obviously a significant factor. We have a federal government policy currently operating with much attention being given to inflation, and a great deal of effort being taken to keep those inflation rates at a moderate level. To the extent that those efforts are successful, the historical data suggests that it may well ward off an economic storm or a financial storm in the sense that we had one during the period where inflation rates were averaging between 7% and 8% per year. If conditions change in a way that turns that around, however, who knows what kinds

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of circumstances may occur. I think focusing on inflation as an ongoing component of policymaking is absolutely essential in the future.

Our clients ask us what to do about the problem of coping with cash-flow pressure in this context of disappointing current income figures. Our answer is to look at investments not just in terms of long-term returns, although such rates obviously can't be ignored, but also to look at them in terms of cash-flow characteristics. There are a variety of categories of investments out there that have not been given much attention by most pension fund investors that bear thinking about.

There are segments of the stock market that have higher-than-typical dividend yields and consideration needs to be given to those. There are segments of the bond market that have relatively high interest yields. We think that, despite the fact that junk bonds have a bad name and have left a bad taste in many people's mouths, it may well be that for periods of time, there will be conditions where it's more prudent to take the credit quality risk on junk bonds than it is to take the duration risk of extending maturities in order to capture higher yields. We think those kinds of issues need to be thought about.

The types of securities that have not found a broad market among pension fund investors, like convertible securities, for example, may well prove to be something that's more attractive in the years ahead. We've been through a period of years in which the volume of convertible securities issued and available in the marketplace has increased significantly. To the extent that those kinds of securities find willing takers among pension fund investors, I suspect that issuers may find more reason to issue that kind of paper to take advantage of the emerging demand. There are a whole variety of diversification issues that need to be thought through in terms of balancing off risks versus returns.

We've gotten far into this discussion without giving any specific consideration to foreign investments. Foreign investments have come to be a much more significant factor in retirement plan investing in recent years and we expect to see that trend continuing. Does the historical long-term evidence suggest that that's a good idea? I don't know. There isn't any historical long-term evidence with regard to foreign investments of the kinds that people are making these days as an alternative to domestic stocks. There is anecdotal, fairly short-term information available for ten years or maybe a bit longer than that, but that kind of information obviously can be unrepresentative of what the long-term picture is going to provide.

We think that a purely statistical approach to considering the merits of foreign investing is not likely to be sufficient. I think that you really need to have a sound understanding of the political, economic and financial characteristics of the companies, of the types of securities, and of the markets that they're being traded in in order to make sound decisions in that area and in order to appreciate the nature of the risks that are involved in those kinds of programs. That includes both the equity and the fixed-income sides of the markets.

Some foreign investments have become very easy to get into. On the common stock side, there has been a real proliferation of American depository receipts (ADR) available and traded here in U.S. markets in U.S. dollars. Income gets paid on those

securities in U.S. dollars. You don't have to deal directly with the foreign markets, but you're not isolated or insulated from currency risk by making those investments. Currency risk is a very significant portion of the relationship between U.S. market returns and foreign market returns.

While there is not a lot of evidence with regard to foreign investments over a long time horizon, there is a lot of long-term information available about currency spreads and currency fluctuations. That data suggests that there indeed is some opportunity for diversification through a combination of U.S. and foreign holdings. With regard to that aspect of foreign investment programs, I think there is a fundamental logic to it that warrants giving careful consideration to the other aspects of the risks that are involved.

We've been through a period of years during which real estate investment programs have come to grief. For a fairly extended period of time, we had real estate investment programs available in this country up to the late 1980s that were producing very attractive, very satisfactory, and indeed very stable rates of return for an equity type investment program.

Lo and behold, with the excesses in the savings and loan industry and various other providers of capital to the real estate markets, we came upon evil times. There are many pension funds with real estate investment programs that are still feeling the pain of what's happened there. Nonetheless, conditions have changed significantly there. If your attention is now being directed to cash income, it may well be that there are areas of opportunity on the real estate side that need to be thought about, even if the underlying properties are not as liquid as things like stocks and bonds.

If you can create a real estate portfolio that is throwing off something like an 8% or a 9% cash yield on the current appraised value of the properties, that may be an attractive alternative to a combination of stock and bond investments that might otherwise be made. In the interest of diversification, I think we're going to see more attention being given to real estate. I think part of the reflection of that is already available in the public security markets through the dramatic issuance of real estate investment trusts (REITs) in 1994.

On the one hand, those real estate investment trusts have offered attractive yields to investors in comparison with common stocks. On the other hand, they are a source of capital that is bidding up the prices for the real estate that is out there in some sectors. I think attention needs to be given to the specifics of any of those investments in a way that avoids expecting that these investments will behave in some consistent fashion over time.

Insurance company products involving guarantees have not necessarily been the hottest product area for defined-benefit plans in recent years. Credit quality problems obviously have been a contributing factor there; some insurance companies actually having to go through the anguish of reorganization with diminished values going to holders of those contracts. What's at least as important, though, is the increasing concern with liquidity, the somewhat reduced liquidity that many of these contracts entail, and the fact that it's one thing to lock in a 13% or 14% or 15% annual yield for a five-year period, and it's something else, again, to lock into a rate on the order

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of 5% or 6%. The logic of that is not very appealing when your actuarial assumption is 7% or 8% per year. We think, in the context of defined-benefit plans at current levels, that there's probably not going to be a significant increase of interest in those kinds of vehicles.

The last category is derivatives. That's a subject that allows us to talk about almost anything we want to talk about. The derivative markets have become an object of daily attention by the press because of the risks they have entailed and because of the losses that they have generated. Less noticed in the press is that there are substantial portions of the derivative markets that have long been used to make a positive contribution to the effective management of risk and the effective generation of returns in investment portfolios.

I think it's beyond the scope of the discussions here to try and deal with all of the various types of derivatives that are out there, and all of the various types of risks that they entail. Clearly, that's something that investment managers and plan sponsors will have to give close attention to in order to be effective users of those types of holdings.

One of the problems that plan sponsors are going to have to deal with in connection with derivatives and some securities that perhaps aren't quite derivatives, is that there are parts of the securities markets that entail risks that are not very evident. Bonds are being sold in the mortgage-backed area on a variety of assumptions of how quickly mortgage repayments will be made. It is clear that those projections on a security-by-security basis are not very reliable.

The consequence of that is that rates of return on mortgage-backed security programs have suffered and I think may continue to suffer out of the concern with the predictability of economic conditions. Beyond the plain vanilla kind of mortgage-backed securities where all of the holders share on a pro rata basis in the principal and interest payments, there is the whole realm of collateralized mortgage obligations (CMOs) that take the cash flows from mortgage-backed securities and divide them up in strange and wonderful ways.

Some of those categories or tranches of CMOs are relatively stable and predictable kinds of securities in terms of their cash-flow characteristics, and may well be attractive vehicles for plans that are concerned about controlling cash flow. But other significant portions of that marketplace are much more uncertain than the basic underlying mortgages and hence extra caution needs to be taken.

The problem is that if you look at the custodial statements on your pension fund, apart from the fluctuations in market value, most likely there isn't going to be very much of a clue as to the underlying characteristics of the particular instruments that you're invested in. That's a concern that really goes beyond the mortgage-backed security area. We're seeing bonds being issued by federal agencies, as well as by private corporations, where the yield or the repayment of principal may be expressed in terms of U.S. dollars, but where it's indexed to foreign interest rates, foreign currency values, or a whole variety of other exotic and potentially highly volatile markers, indices, or yardsticks.

Again, those kinds of securities can easily creep into investment portfolios unnoticed unless you're alert. Consultants have been talking to their clients for many years about the importance of having investment policy guidelines for their programs in order to have effective control over the risk characteristics of the program. The reality is that most of the policy statements that are out there simply don't deal with the kinds of exotic risks that we're talking about here.

Investment guideline statements for bond portfolios may talk about the durational characteristics of the securities. They likely talk about the credit quality ratings of the securities and may address diversification within the fixed-income markets in some ways, but they probably don't get to a lot of these more exotic considerations which can, in fact, be the driving force in terms of the kind of market volatility that programs actually experience.

There have been stories in the press about varieties of mortgage-backed securities called income only, principal only, or inverse floater bonds. These have been particularly volatile in the rising interest rate environment that we've recently had and have responded in ways that were dramatically different than the kind of price action that had been anticipated. We're living in circumstances where risk needs to be considered, I think, in a whole variety of ways that hadn't been necessary, as a practical matter, in the past.

Apart from what individual securities look like, there are issues of investment style (in terms of putting together investment programs) that need to be taken into account. One way of differentiating investment approaches is through a distinction between active programs and passive programs. On the equity side, we have seen dramatic increases over the course of the past decade or so in the portion of equity assets actually invested in S&P 500 index funds. Part of that, I think, is a reflection of the perception that the S&P 500 is a difficulty bogey to meet.

Well, we've already noted that in recent years it hasn't been such a difficult bogey to meet. I think that plan sponsors need to think about the issue of whether assets ought to be indexed, not just in some abstract sense, but in terms of the specifics of their particular fund circumstances. If there is a \$5 billion investment program that is going to be close to capitalization weighted, it may make sense to have some significant portion of those assets invested through an index approach in order to capture the efficiency and the economy that approach to investing entails. Fees are lower. Trading costs are lower.

On the other hand, if a plan has more modest assets, it may be practical to get closer to an equal-weighted portfolio. The last three years have been relatively strong for equal-weighted index results, but if you look at a significantly longer period, you find that equal weighted S&P 500 index figures are ahead of the capitalization figures over the long term. Index approaches are not simply a matter of taking advantage of what's out there in the published indexes. It's a matter of thinking through what kind of index characteristics you're really interested in.

On the fixed-income side, the question of active versus passive clearly also entails consideration of index issues. Here, I think the arguments for using an index approach are even less clear than they are on the equity side. The fact of the matter is

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that people like the notion of investing in bond indexes (1) because they think that managers have a hard time beating them, and (2) because it appears to be a cost efficient thing to do. Maybe there's some merit in those arguments, but a driving force also is that investing in a bond index controls investment risk. That is a much more questionable proposition.

Bond indices change significantly in their risk characteristics depending on what is issued in the marketplace. For example, if you look at the corporate bond index in this country over the last ten years, you find that at the beginning of that ten-year period AA- and AAA-rated bonds represented about 43% of the whole bond index. If you look at those numbers now, AA and AAA corporate bonds represent about 22% of the index; so the credit quality of indices can change significantly.

Even more dramatic is what can happen to the durational characteristics of bond indices. We talked about the mortgage-backed bond area as being a particularly problematic one. The six-month period that ended March 31, 1994 is perhaps the best example of that. With rising interest rates over that period of time and the impact that had on the pattern of repayments, the duration of the mortgage-backed bond index actually doubled over that six-month period of time; it went from a bit over two years to something over four-and-a-half years.

That is not what I have in mind as controlling investment risk. If you're interested in controlling investment risk with regard to bond portfolios, there are ways of doing it that entail looking at the actual durational and quality characteristics of the securities, and taking those factors into account; but not by simply assuming that a particular index is going to have the risk characteristics that you can rely on for an extended period of time.

It's tempting for plan sponsors to think they can index their portfolios and then they won't have to pay attention to it. That's exactly the opposite of what they ought to be doing. In fact, index-oriented portfolios require more watching to assure that they are providing the risk/return characteristics and balance that you intended than an active portfolio where someone is making judgments as to how the portfolio ought to be modified to take advantage of opportunities and to avoid investment problems. The notion that index funds simplify the management of investment programs, I think, is simply a mistaken notion and one that ought not be allowed to creep into the process.

During the days in which interest rates hovered in the mid-teens area, there was an awful lot of interest in dedicated and immunized bond portfolios—bond portfolios that stabilized the rate of return for some specific period of years by associating the assets with certain, specifically defined liabilities. We're now at the point where it's much less appealing to immunize at a 6% or 7% return. On the other hand, we're also at a point in time where planning cash flow to meet benefit obligations has become more important.

It may well be that some of those notions about immunized and dedicated bond portfolios that came and went with high interest rates will begin to come into play again as investors utilize those kinds of approaches to controlling risk and helping to control cash-flow characteristics of their programs.

There are many other things going on out there in the investment markets that may potentially have an impact on long-term returns and that are likely to have impact over the short run, at least, in how plan sponsors address current investment issues. One subject that, generally speaking, has not been much of a factor has been the issue of economically targeted investments. Economically targeted investments is kind of on the other side of the coin of much of the social investment thinking that went into decisions to avoid investments in South Africa and to avoid investments in companies that were doing ecological damage or social damage of other sorts.

The notion that's being talked about now is whether pension fund assets can be used not only to produce an appropriate rate of return with appropriate risk characteristics, but to also provide collateral economic advantages, or perhaps increase employment opportunities, or perhaps build up the economy in the area served by a particular pension fund. Pronouncements are on the way from our federal government in this area. The Department of Labor (DOL) is in the process of putting together their thoughts, encouraging investments that are economically targeted. Some of that will be real estate and mortgage-oriented kinds of programs to build up the housing stock in this country, but other things may be involved as well. We think that with the DOL support, plan sponsors are going to be paying some attention to those kinds of opportunities. There are some areas where there will actually be some subsidization of investments in those programs that might make them attractive candidates for consideration.

Another factor for stock investors is the whole question of proxy voting, which has been deemed by the Department of Labor to have economic value. No one knows how much economic value there is in any particular situation, but in principle, I think there is some logic to the idea that the right to have a vote or a say in how a company conducts its affairs is of some value. Here, too, the DOL is going to be promulgating guidelines, which have only been waiting since the publication of ERISA back in 1974, with regard to the kinds of things that plan sponsors ought to do in the proxy voting area.

Plan sponsors have generally taken recognition of some private rulings by the DOL in this area and have put in place procedures to see that proxies are voted in some coherent fashion, but we think that more attention will be given to this area. The question is whether the costs of doing all this outweigh potential advantages.

Again, this is an area where size may well be a significant factor. We've been through a period of years in which very large funds—perhaps the best example being California Public Employees Retirement System—have taken a direct interest in issues of corporate governance and claim to have had a significant, favorable economic impact on the value of their investment portfolios. I think there are messages there that sponsors of very large funds need to take seriously. Voting large amounts of stock can have an impact on how companies conduct their affairs and on the kinds of investment results that portfolios are likely to produce.

We've concentrated in the discussions so far on defined-benefit plans and given short shrift to defined-contribution programs. That's not because defined-contribution programs don't warrant close attention. It's perhaps because we have much more history and experience in dealing with defined-benefit plans, and also because

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actuaries have much more direct concern with defined-benefit programs than they tend to have on the defined-contribution side.

The proliferation of defined-contribution plans and the steady increase in those assets in comparison with the assets in defined-benefit programs may well be a factor that has macroeconomic implications quite apart from the plan-by-plan considerations we have discussed. One thing that is fairly clear, based on past history, is that defined-contribution programs tend to be much more conservatively invested than defined-benefit plans.

Defined-contribution programs where the plan participant has a direct say in how the monies are invested tend to be committed with a much shorter term time horizon in mind than plan sponsors of defined-benefit programs have used. While there may be some moderation in that conservative tendency as people become more familiar with more volatile types of investments, I think it will continue to be the case that defined-contribution programs are going to be more conservative.

How the balance of risks and returns between stocks and bonds will play out over the long run is uncertain. What's even more uncertain is how it may play out on a year-by-year basis.

I think one of the things that actuaries ought to be paying attention to over a long-time horizon is the actual distribution of monies between defined-benefit and defined-contribution program, and how their assets are individually deployed so that some consideration can be given to macroeconomic considerations.

Plan design clearly has an impact on investment programs in the contrast between defined-benefit and defined-contribution and the hybrid type plan designs that are being given consideration these days as a way of retaining some of the flexibility of defined-benefit approaches while minimizing some of the financial risks that defined-benefit approaches entail. Investment programs for those hybrid types of plans clearly need to take into account who's bearing the risk and to what extent they can tolerate it.

Weathering the financial storm on pension funds. I'm not sure that I've provided you with umbrellas or galoshes to help deal with the conditions that lie ahead. But I hope that some of these thoughts may spur your interest in considering approaches to retirement fund investing in ways that enable your clients to deal more effectively with the uncertainties that the security markets entail.

The description of this program indicated that you might hope to come away from it with a better understanding of what yields and what return rates on security portfolios are going to be. I'm not very good about guessing those kinds of numbers. I suggest that you take a look at a long-term history. Unless you're planning to do something radically different in your investment programs, those long-term results are probably as good of an initial indicator as you can develop. The indicator is not necessarily the broad market figures, but the figures for markets that reflect the kinds of risk characteristics that you've built into your program and that you think you're going to be able to sustain as the demographic and other characteristics of your programs change over the years.

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I think that about runs through the agenda that I have to cover. If there are comments, questions, or observations that you have at this point, I'd be glad to respond to them.

MR. MINGIONE: Many of the numbers that you discussed showed that the last ten years have been extremely favorable and the 10 or 15 years prior to that were extremely unfavorable. There are many reasons that we could go through, including a change in monetary policy by the Fed in the late 1970s and the oil crises that hit in the 1970s.

I think the cause for those kinds of numbers is that when you have a poisonous economic decade like we had from the early 1970s to the early 1980s, the economic fundamentals in the markets will allow an extremely tremendous return for the following period; things like bond yields and dividend payout ratios were at historic highs.

Now the reverse is true. We have bond yields that are close to dragging on historic lows, and the same thing with dividend payout ratios in the equity markets. As a result of that, I've heard some investment experts say, and the models that we use for producing economic results for our forecast models at Towers Perrin show, that the next 10 or 20 years will show that some of the probability for extremely favorable performance is missing, indicating returns will be somewhat lower than the ones we've seen in the past.

Quite honestly, I don't know what that means for our plan sponsors. I don't know what they can do about it. They can't flee to cash to get rid of the risk, because then they'll just bring the poor performance on with 100% probability. I think some of that feeling is responsible for the increase in the foreign investments; thinking that if you get out of the American economic system, you have a chance to get some favorable returns that you don't have over the next decade. I'd just throw those thoughts out and see if there are any reactions.

MR. LEVENSON: Well, there are a lot of good thoughts there. I think regression to the historical mean is fundamentally an attractive proposition. We've had an extraordinarily favorable period from 1982-93. We had an extraordinarily unfavorable period during the 15 or 16 years immediately prior to that. Those are awfully long periods of time to have such an extraordinary range of differing results. I think one of the real problems here is the length of those time periods in comparison with the time horizons that plan sponsors think of for their investment programs. It's awfully hard to get plan sponsors thinking about more than what is going to be done over the course of the next five years or so.

It's so easy to have divergent results one way or another over a period that is so short. There is a real problem there that I think has to be dealt with through education. It can also be dealt with through diversification along the lines that you were talking about—utilizing the foreign markets, utilizing a wide array of security types that perhaps have not played as substantial a role as they might have played given the characteristics that plans have matured into.

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FROM THE FLOOR: I'd like to understand a little more about Table 1 with regard to the long-term government bonds. Say the compound rate in 1982-92 is 15.62. What exactly is the method of arriving at 15.62? I have a related question after that.

MR. LEVENSON: That is a time-weighted, annual compound rate of return over that period reflecting the coupon payments on the bonds and the price appreciation or depreciation on the bonds. It's based on the long-term government bond market, a broad array of government securities with maturities ranging from ten years out to 30 years, reflecting the actual maturity distribution of what's out there in the marketplace over that span of time.

FROM THE FLOOR: In trying to say that this particular number of 15.62 sort of summarizes the experience from 1982-92, what we should say is to the extent it summarizes the reinvestment of coupon, it is correct. But really the reinvestment of coupon over a ten-year period might be small compared to the price at the beginning in 1982-92. Therefore, the measurement, in fact, doesn't reflect what happened during the ten years. You would have had a couple of financial storms during this period and this rate would not reflect it at all.

MR. LEVENSON: I'm sorry. I didn't follow that last point.

FROM THE FLOOR: If you had a couple of financial storms between 1982 and 1992, this number wouldn't reflect it because it just takes a point of time—January 1, 1982 and maybe December 31, 1992.

MR. LEVENSON: It's not a dollar-weighted result. It doesn't reflect the cash flows of any particular fund. What it reflects is an assumption that you invested \$1 at the beginning of that period of time and let it sit there for the full eleven years. The extent to which a dollar weighted rate reflecting a different pattern of cash flows would differ from that depends on the order of magnitude of the cash flows relative to the magnitude of the starting value.

If the cash flows are relatively modest, you might not get a number very different on a dollar-weighted basis than you got on a time-weighted basis. You can't tell up front whether the dollar weighted number would have been higher or lower. It would have depended on the timing.

FROM THE FLOOR: In fact, I'm urging that we must, to publish this and then try to understand this is what is happening over the period. No, it's not. Actually, it has no description of what happened during the ten-year period. We need to have a different type of index which shows what did happen over the ten-year period. In 1982, interest rates were probably 12% or 13%. In 1992, it was 8%. Just to pick a ten-year period where it was on a particular basis, I think, is not entirely . . . Really, I am saying that in describing what happened between that period. Maybe it's something like if you were to invest a dollar every day for the last ten years, this would happen in the long-term bond market. One a day in the S&P 500 would have resulted in this. That's a better way of comparison. I'm talking about a method of comparison. Maybe we ought to re-think whether to publish such tables and call it as a method of comparison is not an effective way. That's really what I'm driving at.

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MR. LEVENSON: Not necessarily. We're looking at a selected sample of the data that's available for this session. The Society's publication, *Statistics for Pension Actuaries*, on statistics for pension actuaries does indeed give you the year-by-year detail. Beyond that, they give you not only the total rates of return, but they give you a breakdown year-by-year of the components of that total return in terms of coupon yield and price actions so that you can see that data in the underlying material. If you have a particular situation that you're dealing with, you might want to look at that detail.