

**RECORD OF SOCIETY OF ACTUARIES
1986 VOL. 12 NO. 1**

**AN OVERVIEW OF PENSION ISSUES
AND RECENT DEVELOPMENTS FOR
THE NON-PENSION ACTUARY**

Moderator: DAVID M. LIPKIN
Panelists: JOEL S. FEINGOLD
JOHN E. FOLEY
RONALD M. TAGOFF
Recorder: GRETCHEN A. LOWRY*

- o Past and pending regulatory developments
- o Implications of recent accounting developments
- o Plan design
- o Investment measurement/control of risk

MR. DAVID M. LIPKIN: Our panel is going to discuss a number of changes in the pension area. We realize that you're not pension actuaries, so we will try not to be overly technical. The general areas that we're going to discuss are in design of pension plans, the impact of recent legislative changes on pension plans, accounting for pension plans, and finally, investments for pension plans.

The topic of my discussion is *The Search for the Perfect Plan*. What I hope to do is refresh your memory on defined benefit and defined contribution plans and what the differences are, and then take it a step further and discuss some attempts that have been made to get the best features of each in one plan. Specifically, we will examine floor plans and target benefit plans, and then devote a little bit more attention to cash balance account plans, because

* Ms. Lowry, not a member of the Society, is with Aetna Life and Casualty in Hartford, Connecticut.

PANEL DISCUSSION

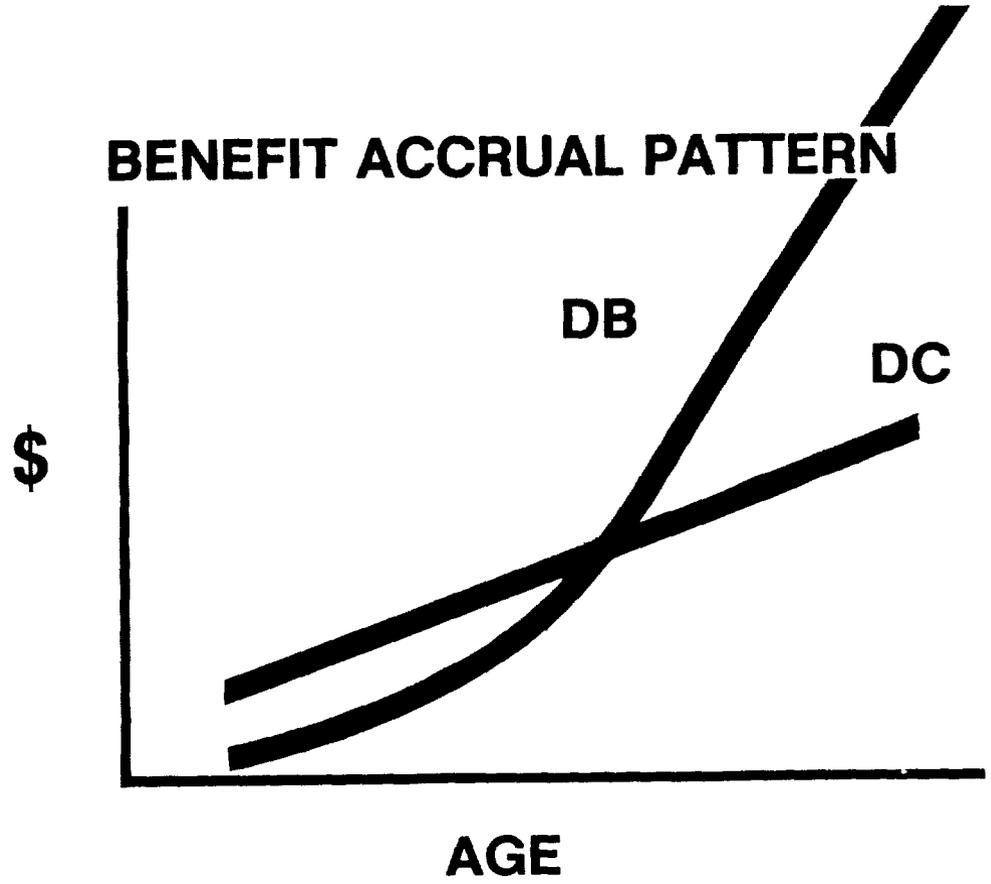
they've gotten a lot of publicity recently. Actually what I hope to demonstrate on cash balance account plans is that they've gotten a lot more publicity than they really deserve.

Before we begin I would like to review the definitions of defined benefit and defined contribution plans. In a defined contribution plan, the plan defines the annual contribution. An individual's benefit is based on his own personal account balance, which grows with interest just like a savings account. A typical employer contribution might be 3% of pay each year. Defined benefit plans provide a monthly income when you reach retirement age, normally 65. The contribution has to be determined actuarially, and it's often spread as a level percentage of pay over the working lifetime. An example would be a plan that provides a monthly benefit of 50% of final average earnings. The benefit accrual patterns under these two approaches are quite different.

What the graph in Figure 1 illustrates is the value of the current benefit accrual at various ages. The defined contribution pattern is more steady, and the only reason it would increase would be for increases in salary. Defined benefit plans, on the other hand, require more and more employer contribution as an employee becomes older, because the amount of benefit accruing each year is greater. In addition, the value of that benefit becomes greater as the deferral period shortens. The two things I would like to point out here are: 1) For younger employees the defined contribution plan is often more attractive. 2) If an employer terminates a defined benefit plan and replaces it with a defined contribution plan, older employees are going to drop from the defined benefit curve down to the defined contribution curve, and their future accruals will be much less.

The spread sheet in Figure 2 shows the advantages and disadvantages of each type of plan. The reason there is a neutral column in the middle is that many of these characteristics can be viewed as either an advantage or disadvantage. The first item is investment risk. On a defined contribution plan the employee bears the investment risk; if the investments do well he'll get a generous benefit; if not, his retirement income may not be large enough. The second item is termination benefits. As Figure 1 shows, the younger employees, who are more likely to terminate, will receive a higher benefit under a defined

FIGURE 1



PANEL DISCUSSION

contribution plan. Many employers don't view that as an appropriate thing to do -- they don't want to give generous benefits to people who leave their company. The third point is really more a disadvantage of a defined contribution plan. It says that it's difficult to start a defined contribution plan from scratch and provide meaningful retirement income to your older employees. There's not enough time to build up a meaningful account balance.

FIGURE 2

ADVANTAGES OF EACH

<i>DC</i>	<i>Neutral</i>	<i>DB</i>
1.	Investment risk	
2.	Termination benefits	
3.		DB → DC transition difficult for older employees
4.	Access to benefits before retirement	
5.	Form of benefit	
6.	No unfunded liability	
7.	Less government/ actuarial involvement	
8.	Can be tied to profitability	
9.	More visible to employees	
10.		Only way to plan income
11.		Contribution flexibility

The fourth item deals with access to benefits before retirement. Often in a defined contribution plan an employee can use the money in his account to buy a house, for example, before he retires. Many employers don't think that is

AN OVERVIEW OF PENSION ISSUES

appropriate, because it could sacrifice the security of the employee's retirement income. The next item is form of benefit. Defined contribution plans usually provide a lump sum when you retire, and often those lump sums are large. Defined benefit plans, on the other hand, provide a monthly annuity. Some employers fear that an employee may unwisely spend his account balance. Most of these neutral items depend on how paternal the employer wants to be.

Point six deals with unfunded liabilities. Normally under a defined contribution plan, the assets will always equal the account balances, so you never have an unfunded liability. Therefore, the employer would never be on the hook for an unexpected amount of contribution. That leads right into the seventh point. Since there's no unfunded liability, there's not as much government reporting to do, and you don't have to hire actuaries to do annual valuations.

Defined contribution plans can be tied to profitability, as in a profit sharing plan. This allows a young company to sponsor this type of plan. The ninth point is a very important advantage for defined contribution plans; it is the visibility of the account balance to employees, especially the younger ones. Younger employees appreciate these plans more than they do a defined benefit plan which offers the vague promises of income far down the road.

The next points are the two biggest advantages of a defined benefit plan. A defined benefit plan is the only way to consciously plan specific retirement income for specific people. An example would be a formula of 2% of final average earnings for each year of service with an \$80 per month minimum. You can't do that kind of planning in a defined contribution plan. Finally, a defined benefit plan allows for greater flexibility. You have the choice of paying anywhere from the minimum contribution -- which might be zero -- up to the maximum contribution, which can be quite large. You can fit that flexibility into the employer's business needs.

There has been a search over the years for the "perfect plan" which combines the best attributes of both defined benefit and defined contribution. The first hybrid situation, called a floor plan, is really not one plan but a combination of the two working together. The primary benefit is provided under the defined contribution plan. When someone retires or terminates, the account

PANEL DISCUSSION

balance is converted into a hypothetical amount of equivalent monthly annuity. For example, you may have \$10,000 in your defined contribution account that could be converted into \$100 of monthly annuity. It doesn't mean the employee has to take the monthly annuity, but the calculation is made. The amount of monthly annuity is then compared with the floor benefit which is provided under the defined benefit plan. If the floor benefit is higher, then the defined benefit will supplement the defined contribution plan to bring the employee up to that floor. Otherwise no benefit needs to be provided from the defined benefit plan. It's a useful transitional tool. As Figure 1 showed, if the employer switches from defined benefit to defined contribution, the older employees drop from the more generous defined benefit curve and suffer a loss in future accruals. This is one way to handle that situation.

Another attempt to get the best attributes of both plans is a target benefit plan. This is legally a defined contribution plan, but it masquerades as a defined benefit plan. The plan provides a target benefit -- for example, \$100 of income per month. It also has a numerical table that translates each dollar of monthly income into an employer contribution for each year of employment. So, the lower the entry age, the lower the required annual contribution. If someone enters the plan at a higher age, it will require a higher level of contribution to build up to that target benefit.

There are nondiscrimination tests that the IRS imposes on target benefit plans, because having different contribution levels for different people would raise questions in that area. The IRS answers this question by comparing benefits as a percentage of pay. It also provides for a safe harbor interest rate to be built into those actuarial tables, and the interest rate it provides is 5-6% interest. Many target benefit plans use that low rate of interest to be in the safe harbor for discrimination. The account balance, however, will grow with the actual rate of interest. If that exceeds 5 or 6%, then the actual benefit the employee receives will exceed the target. On the other hand, if the investment experience is less favorable than anticipated in the tables, the employee will receive less than the target benefit. You need an actuary just once for this target benefit plan -- to set up the initial tables that determine the annual contribution.

AN OVERVIEW OF PENSION ISSUES

I'd like to conclude with the new kid on the block: Cash Balance Account Plans (CBAP). As I indicated earlier, these plans have received a lot of publicity. This plan has several other names: Cash Balance Pension Plan, Pension Equivalent Reserve Credit, and Cash Reserve Account Plan. This is a career average earnings defined benefit plan. That's a plan where an employee accrues a certain percentage of his current pay as an annuity each year. Also, each year the accruals that the employee earned in prior years are indexed for inflation. The accrued benefit is stated as an account balance. The indexing of the prior accruals is at a predetermined rate stated in the plan document.

This resembles a defined contribution plan. It is just the opposite of a target benefit plan, which was legally a defined contribution plan that masqueraded as a defined benefit plan. The CBAP is legally a defined benefit plan but is presented as a defined contribution plan. Most employees would not even know that they were not covered by a defined contribution plan. So, really the story under the cash balance plan can be told either way -- as a defined benefit plan, which it legally has to be, or as a defined contribution plan, which is how you're selling it to the employee.

Why is it not a defined contribution plan? First of all, the actual amount of assets in the plan will not equal the sum of the account balances for the individual employees. Each employee's account balance is the actuarial equivalent of his accrued benefit, but it's funded just like any other defined benefit with a normal cost and past service liability. That's why the assets will usually not equal the sum of the account balance. Also, the interest credits are not tied to actual fund experience. In fact, they can be almost anything except actual fund experience in order to meet the definitely determinable requirements under a defined benefit plan.

Let's look at the example in Figure 3. We're going to explain this to the employee as a defined contribution plan that will give a credit of 5% of pay each year. Interest on the account will be earned at the rate of 8% per year. The employee enters on 1/1/86 and earns \$20,000 per year. The top portion of Figure 3 explains to the employee what's happening in his "defined contribution" plan. His pay is \$20,000 a year, he starts with no account balance, and he gets 5% of his salary (\$1,000) per year. That's what he has credited to

ACCOUNT BASED PENSION PLAN EXAMPLE

Development of Account Values

Year	Pay	BOY Balance	Credit	Interest	EOY Balance
1986	\$20,000	\$ 0	\$1,000	\$ 0	\$1,000
1987	20,000	1,000	1,000	80	2,080
1988	20,000	2,080	1,000	170	3,250

Development of Equivalent Benefit

Year	Pay	BOY Benefit	Benefit Earned	Interest	EOY Benefit
1986	\$20,000	\$ 0	\$100	\$ 0	\$100
1987	20,000	100	100	8	208
1988	20,000	208	100	17	325

Benefit Formula 1/2% of Pay; Maturity Factor = 10

AN OVERVIEW OF PENSION ISSUES

his account at the end of year one. At the beginning of year two he starts with the \$1,000, earns another \$1,000 (5% of \$20,000), now has earned \$80 in interest on the beginning account balance at 8%, and so on. It looks just like a regular defined contribution plan.

The key here is making a link so it can legally be a defined benefit plan. The way this would be written as a defined benefit plan would be this: the benefit formula would be 1/2% of pay as a current accrual of annuity. The actuarial equivalent so that the benefit can be converted into an account balance would be a maturity value of 10. The funny thing is we use no pre-retirement interest discount in determining that maturity factor, so the conversion factor of 10 at age 64 would be identical to the conversion factor at age 24 because interest is not a factor.

As the bottom portion of **Figure 3** shows, the pay is \$20,000, and we're going to provide an annuity credit of a 1/2% of pay, or \$100 per year. That's the benefit from year one. In year two the person earns another \$100 of benefit credit, and the interest of \$8 says that we're going to index the prior accrual with inflation at 8%. The connection is made because the end of the year benefit multiplied by ten, which is the conversion factor, gives you the account balance. You can see that the linkage is a little bit strained because we don't use pre-retirement interest. Also, not using pre-retirement interest creates higher contributions for younger employees, and that's one of the advantages (or perceived advantages) of a defined contribution plan.

What are the advantages of a cash balance account plan? First of all, it offers funding flexibility. If you have a defined contribution plan it would require, for example, 5% of pay per year -- no more, no less. In this situation, though, you can fund it just like a defined benefit plan - within a range of minimum and maximum contributions. There are also certain occasions where the employer legally would like to have a defined benefit plan but wants it to look like a defined contribution plan -- for example, the employer who recently started a defined benefit plan but would like to convert it to a defined contribution plan. If he terminates it in order to accomplish that conversion, the IRS could raise questions about the permanency of the initial plan and possibly disqualify it. Section 404(a)(7) of the Internal Revenue Code says

PANEL DISCUSSION

that if you have a defined benefit plan and a profit sharing defined contribution plan, your maximum deductible contribution is 25% of pay. You can get around that if your defined contribution plan is legally a defined benefit plan. There is one other important advantage. This is a way you can provide past service credits under a defined contribution plan, which you normally can't do.

What are some of the disadvantages? There's no choice of investment. Normally, in a defined contribution plan the employees can determine how much to put in stock, how much in bonds, how much in a safe guaranteed investment. In a cash balance account plan, you can't give them that choice. The employees can't touch their balances before they retire. There is actuarial involvement in funding the plan and potential underfunding. The Pension Benefit Guaranty Corporation (PBGC), the branch of the government that guarantees benefits for defined benefit plans, requires that you pay a premium that has recently been raised to \$8.50 per employee. That has to be paid here. It can upset the balance of benefits between defined benefit and defined contribution plans. As the graph in Figure 1 shows, often if you have one defined benefit plan and one defined contribution plan it provides a nice balance of benefits between younger, older, long service, and short service employees. That balance can be upset if you have a defined contribution plan and add a cash balance account plan, as a major national bank recently did, and it's artificial.

Before I discuss the general conclusions, my own personal conclusion on the cash balance concept is that it's like buying a condo. You have to pay a big purchase price like a house. You get to live in a smaller unit, often like an apartment. You have to pay monthly fees. To some people a condo is the worst of both worlds. To me a cash balance account plan is the worst of both the defined benefit and defined contribution worlds. I found it interesting that it got as much publicity as it did.

The general conclusions are: both defined benefit and defined contribution plans do serve their own purposes. Combinations where you have both the defined benefit and defined contribution plan covering the same group of employees often work well and provide the right balance. Crossovers where one plan tries to serve the purpose of both are often lacking.

AN OVERVIEW OF PENSION ISSUES

MR. JOHN E. FOLEY: Many of the recent regulatory developments I'm going to discuss deal with changes to ERISA. I'm not going into the specifics of ERISA, as I assume you have some general knowledge of the law. ERISA did establish some general principles, though, which I believe are important, so I'll summarize them briefly.

- (a) If a defined benefit plan qualifies for preferential tax treatments, then each participant has an accrued benefit which is definitely determinable and which cannot be reduced.
- (b) All participants must eventually own their accrued benefits.
- (c) The plan can't favor owners and a highly paid group at the expense of other employees.
- (d) Employees' spouses also have considerations in the benefits provided to employees.
- (e) Benefits must be pre-funded in a reasonable manner.
- (f) At least part of a participant's accrued benefits should be guaranteed by the government.

I believe that most of the regulatory developments since 1976 could be viewed as a refinement of the principles of ERISA either by the courts, the IRS, or Congress itself.

I want to concentrate on the developments of the last couple of years, specifically the ones which occurred after TEFRA. A logical place to start would be with the legislation of 1984 -- DEFRA and REA. The Deficit Reduction Act of 1984 actually had very little impact on defined benefit plans. It amended TEFRA by setting new distribution rules, changing the definition of key employees, and postponing adjustments in the Section 415 limits until 1988. The 415 limits are the dollar limits which can be contributed to a defined contribution plan, or the maximum benefit which can be funded for in a defined benefit plan. The current defined benefit limit is \$90,000, and the current defined

PANEL DISCUSSION

contribution limit is \$30,000. DEFRA also virtually eliminated section 501(c)(9) trusts, known as Voluntary Employee Benefit Associations (VEBAs), as a viable way to fund postretirement medical benefits. Ironically this was done just when attention was beginning to be focused on the massive unfunded liabilities in this area.

The major development of 1984, however, was the Retirement Equity Act (REA). Unlike DEFRA and TEFRA, which were passed for fiscal considerations, REA was passed solely as a sociological bill. The lawmakers believed that ERISA rules regarding participation in vesting and spousal coverage discriminated against women. REA lowered the minimum age requirement for participation in a qualified plan from 25 to 21. It provided for earlier ownership of an employee's accrued benefit by lowering the age before which service could be excluded for vesting and by changing the break-in-service rules. It codified the definitely determinable requirement from Revenue Ruling 79-90, which specified that all actuarial assumptions used to determine alternate forms of payment must be stated in the plan. It refined ERISA's definition of accrued benefit to include subsidized early retirement and optional forms of payment.

REA expanded the spousal considerations of ERISA significantly. Pre-retirement spouse coverage must now be offered to all vested participants, not just those eligible for early retirement. Spousal approval is now required to waive the pre-retirement spouse coverage and joint and survivor coverage. Finally, a qualified domestic relations order can now divert pension payments from a participant to his spouse or former spouse.

The Pension Benefit Guaranty Corporation is a problem in itself. The PBGC was established by ERISA to guarantee part of the benefits accrued under terminated defined benefit plans in the U.S. The premium for the coverage was initially \$1.00 per participant per year but was raised to \$2.60 in 1978. ERISA stated that if a plan terminated with unfunded guaranteed benefits, then the plan sponsor was liable for the unfunded amount up to 30% of net worth. I don't know of anyone in the industry who believes that the PBGC has been a resounding success. Especially in recent years, the PBGC has incurred substantial losses from plan terminations where the unfunded guaranteed benefits exceeded 30% of net worth. As a result, the PBGC has recently taken steps to increase revenue

AN OVERVIEW OF PENSION ISSUES

and decrease expense. For instance, under the enrolled actuary certification program, the Corporation now accepts a statement by the plan's actuary that there are no unfunded guaranteed benefits. Also, the PBGC now requires that plans with more than 500 participants pay their premiums early -- within two months after the beginning of the plan year. Previously the deadline was 7 months.

PBGC will also be helped by the Consolidated Omnibus Budget Reconciliation Act (COBRA), which was signed April 7 by President Reagan. The new law increases the PBGC single premium for single employers to \$8.50 per participant. In addition, under the new law, the plan sponsor will now be liable for up to 75% of unfunded guaranteed benefits which are not satisfied by the application of the previous 30% of net worth, plus interest on the deficiency from the date of termination. Also, under COBRA the IRS now has authority to require security as a condition for granting a waiver of minimum funding standards.

The IRS has of course also made its contribution to the principles of ERISA. Most notable is in the area of reasonable pre-funding of benefits. In recent years the IRS has let it be known that it will challenge funding assumptions that it believes are overly conservative, and it will disallow tax deductions based on those assumptions. In this regard the Service has published the audit guidelines. The guidelines are essentially a worksheet for field examiners. Since field examiners don't necessarily have any pension plan experience, the worksheets supposedly act as a red flag when actuarial assumptions used for funding are unreasonable. Some enrolled actuaries see the guidelines as an infringement on their right to choose "best estimate" assumptions and are further offended by the fact that the judgment is made by IRS field personnel with possibly no pension plan experience. The biggest complaint, however, is the fact that the guidelines analyze the return on investment separately from all other assumptions, even though ERISA stated that the assumptions had to be reasonable only in the aggregate.

The major piece of pending legislation affecting qualified plans is, of course, the 1986 tax bill. Likely candidates for change are:

PANEL DISCUSSION

- (a) The dollar limit which can be contributed to a 401(k) plan and an IRA. There may be an aggregate limit on the two as low as \$7,000.
- (b) The 415 limit may be hit again -- this time it might go as low as \$77,000 for a defined benefit plan and \$25,000 for a defined contribution plan.
- (c) Ten year forward averaging for lump sum distributions may be totally eliminated.
- (d) The legislation may also levy an excise tax, perhaps 10%, on excess contribution and reversions. It's not inconceivable that the tax could be levied against the plan actuary -- this was in one of the original versions of the bill.

The most recent Senate Finance Committee proposal would:

- (a) Gradually change the ratio of the 415 defined benefit limit. It is currently \$90,000, but could be changed to the 415 defined contribution limit, which is currently \$30,000. This effectively changes it from 3-to-1 to 4-to-1.
- (b) Provide new vesting standards -- a five year cliff or seven year graduated vesting.
- (c) Change the integration rules for plans that are integrated with Social Security.
- (d) Provide new nondiscrimination and breadth of coverage rules.
- (e) Link the increases in the 415 limits to increases in the taxable wage base.

Some of these changes -- for instance, changing the ratio from 3-to-1 to 4-to-1 -- would be welcomed by many actuaries. Because of the deficit, however, these provisions may not make the final version of the bill, since they would tend to increase the employer's tax deductible limit.

AN OVERVIEW OF PENSION ISSUES

In the area of pending regulation, the IRS continues to refine the principles of definitely determinable benefits. A proposal has recently been made to eliminate employer discretion in allowing optional forms of payment. For example, a typical plan may now say that when a participant retires he can receive his pension as a straight life benefit; 50% or 100% joint and survivor; 10-year certain and life; or any other form, including lump sums, that is approved by the retirement committee. Employer approval for lump sums is obviously meant to protect the fund against anti-selection and excessive strain on assets, but the IRS believes that such language violates the principle of definitely determinable benefits. If the proposed regulations become final, many employers will probably take the lump sum options out of their plan.

It is, of course, not possible to predict what new legislation congress will come up with in the next couple of years. But the provisions of the Retirement Income Policy Act, also called the Heinz-Clay bill, might give us a clue. The bill as it stands includes provisions which would:

- (a) Distinguish between retirement plans and non-retirement or savings plans. A savings plan could not be established unless the employer also had a retirement plan.
- (b) Require employers to include in plans all workers below the Social Security wage base.
- (c) Require full vesting after five years of service for retirement plans and after one year of service for savings plans.
- (d) *Revise the rules for integrating plans with Social Security.*
- (e) Eliminate the special tax considerations for lump sum distributions.
- (f) Require lump sum distributions before age 59 1/2, death or disability to be rolled into an IRA.

The bill was introduced in 1985, and hearings were held earlier this year. Admittedly, the legislation has little chance of passage this session, but you

PANEL DISCUSSION

may have noted that some of its provisions have found their way into the most recent Senate Finance Committee tax proposal.

So, what conclusions can we draw from all this? There are four points which are obvious to me:

- (1) Retirement plans, especially defined benefit retirement plans, are much more expensive than they used to be. The PBGC premium alone has gone up 750% since 1976. Most of the expense is administrative.
- (2) From a sociological standpoint we have a better product than we used to have: more people are covered, more participants own their benefits earlier, and a higher percentage of contributions is going to fund benefits for the rank and file.
- (3) Being a pension actuary is riskier than it used to be. For different reasons the IRS and the PBGC are examining the funding assumptions used by the plan actuary more closely. As a result, we have to spend more time choosing assumptions for funding. We have to be better actuaries than we used to be.
- (4) The nation seems to be developing a retirement income policy. The deficit has certainly caused the regulatory environment to be more restrictive, but it is also forcing us to come to a consensus on what it is exactly that we want retirement plans to accomplish and how much as a nation we are willing to pay for them.

MR. RONALD M. TAGOFF: I would like to start by discussing the basic accounting problem for pension plans. By the way, when I say pension plans I'm referring to defined benefit pension plans. Defined contribution accounting is really quite simple -- the employer makes a contribution and expenses for it.

The basic idea behind accounting for defined benefit pension plans is that the Financial Accounting Standards Board (FASB) wants to see an expense charge for your pension plan that is reasonably consistent from year to year. The question is how to spread pension costs in such a manner as to be fair to different

AN OVERVIEW OF PENSION ISSUES

generations of stockholders. An extreme example of the type of thing the FASB wants to avoid is expensing of an entire unfunded liability all at once. Another issue is that since most people earn their benefits throughout their service, these costs should somehow be expensed over the working lifetime of the employee group.

The FASB's unique way of looking at pension accounting was presented at a lecture given by one of the Board members. The speaker said that as far as the FASB is concerned, the pension plan is nothing more than a life insurance company subsidiary of the corporation. The plan provides annuities and collects premiums in the form of employer contributions. Therefore, pension plan accounting should be similar to what insurance companies use. The only problem that FASB sees with this analogy is that in this case the customer generates the premium charge -- it is not the usual arm's length premium determination that exists between a life insurance company and customer. Therefore the FASB feels it has to determine the premium so that the financial statements are not distorted.

Prior to December 1985 there were three basic Accounting Opinions or Statements that were the basis for all accounting with respect to pension plans. One was the Accounting Principles Board Opinion Number Eight, which came out in 1966; it discussed expensing and disclosure. The others were Financial Accounting Statement Numbers 35 and 36, which came out in 1980 and dealt mainly with disclosure.

New accounting standards came out in December of 1985. Financial Accounting Statement Numbers 87 and 88 have almost completely changed the way pension accounting is done. One major similarity between the old and the new accounting standards is that you use accrual accounting. That implies that what is accounted for in financial statements can be totally different than the contribution actually paid to the pension fund. Many times this is very hard to understand, especially for the clients.

The attitude of the FASB is that the factors that affect funding are different than the factors you might want to take into account when you're deciding what is fair to different generations of stockholders. The things that affect

PANEL DISCUSSION

funding could be tax considerations, available cash, and what alternative investment opportunities there are outside of the pension fund. Accounting could be very different from funding under both sets of standards, but in reality almost all companies used to expense and fund the same amount. This was especially true in the smaller companies, certainly under Fortune 500.

The new standards change that totally. They strengthen the concept that funding and accounting are two different animals and generally make them very difficult to match. Under the new accounting standards you can actually generate a negative pension expense (a pension credit). You can't actually take money out of your pension fund when you generate a negative pension expense, so that's an extreme example of when accounting and funding can't be the same.

There are three fundamental changes produced by FAS 87:

- (1) It demands a standardized cost method. The Statement tells you which cost method to use -- the projected unit credit cost method -- and also standardizes the valuation of assets. In addition, it standardizes the application of the cost method. The old accounting standards were basically like the funding standards of ERISA, saying that any reasonable cost method that spreads the cost in some manner over the working lifetime of the employees as a group was acceptable. The accounting standards now require one cost method.
- (2) The new standards may now require you to recognize the unfunded portion of the pension liability on your books. The only thing that was required under the old standards was to show a certain set of liabilities and assets as a footnote to your financial statement. This stipulation could hurt quite a few clients, making it difficult for them to borrow money at reasonable interest rates with that extra liability on the books.
- (3) Expanded disclosure is now required in the financial statement. Even more important than how complete disclosures must now be is that they must be based on information that is not supposed to be more than 90 days old as of the date of the financial statement. Under the old standards you could

AN OVERVIEW OF PENSION ISSUES

use the actuarial valuation report from January 1 for the financial statement that came out December 31. Although pension actuaries won't be able to do a valuation in time to have exact, current information, they will be allowed to use reasonable approximations to update the January numbers to get them to December.

FAS 88 tells how to account for certain special situations that come up from time to time. Settlements are an example, including a lump sum cashout of one employee or a group of employees, or the purchase of an annuity from an insurance company. Another example is the curtailment of future service credit. If you terminate a pension plan, obviously you lose future service credit. Or you may shut down a plant, curtailing future service credit to certain employees.

There are a few other special situations, but the most important item to come out of FAS 88 is how to treat asset reversions. As you might have known by following newspaper articles in the last couple of years, many companies are terminating overfunded pension plans. They start up a new pension plan that frequently looks identical to the old one. That way they are able to take the excess money out, which normally is not allowed until the last plan participant dies. By doing this they get to use the funds, although they do have to pay taxes on them. Meanwhile, they have a new pension plan and the employees aren't hurt, although their benefit security may be decreased a little bit. This type of maneuver was and is legal, but now it is accounted for differently.

Under the old accounting standards, if you terminated a pension plan, took out the asset reversion (excess assets) and then started up a new pension plan, you couldn't recognize this as a profit in your books all at once. You would have to recognize it over a period of no less than 10 years. FAS 88, however, contains a complicated formula which determines what you can recognize, and basically allows you to recognize almost the whole reversion at once.

Other items that were affected by the new accounting standards include the assumptions that are used. Each assumption must look reasonable by itself. Previously the assumptions only had to be reasonable in the aggregate. For example, you could have used a 6% interest rate assumption with a 4 1/2% salary

PANEL DISCUSSION

increase assumption, and even though those are obviously understated, together they may generate the same kind of pension cost you would get if you used a 10% interest assumption and an 8% salary increase assumption. The first formula is called an implicit set of assumptions; the latter is explicit. The new accounting standards require the explicit assumptions.

Under the old accounting standards you generally did not show a negative pension expense. Under the new standards not only can you show it, but you must show it if that's the way the results are -- if your assets exceed your liabilities you get a pension credit. It improves your profit picture.

Another difference is flexibility. Under the old standards you had a certain minimum and maximum pension expense with the flexibility to choose where you wanted to be within that range. Now there's only one way of doing it. There are a few little choices here and there on how to do approximations, but basically once you've made those choices you're stuck with them. A further difference deals with the expense policy. Under the old standards you could change it from time to time, although you weren't supposed to change it every single year. Now the FASB tell you how to amortize everything, and you do it the Board's way.

I want to again emphasize the much more detailed disclosure required under the new standards. Not only do you have to disclose a large amount of detailed figures, but you also have to discuss anything that significantly affects the comparability of your pension expense from year to year -- a plan termination, for example.

The Board has made comments about why it thinks these new standards are so beneficial. One reason is that it feels the new standards generally require earlier recognition of liabilities. The amortization periods required now are much, much shorter than previously. Typically under the old standards an employer may have been amortizing unfunded liabilities over 25 to 40 years. Under the new standards the amortization period generally comes out to be 15 years or less. The Board also feels that the minimum liability limits the extent of this delayed recognition, so you have all these actuarial losses and things immediately instead of spreading them out over many years. The new

AN OVERVIEW OF PENSION ISSUES

standards require a certain minimum liability calculation that limits the amount you can spread these things out. The Board thinks that is an improvement and that it's more representative of what's really happening to that particular company.

The Board believes that under the new standards the pension expense is more representative of what the plan provisions are, it's more understandable, and it's more comparable from year to year and from company to company. FASB feels that the detailed and more current disclosures will improve everybody's understanding and that the new standards will give better overall reporting of the financial position of the company. At one session, it went as far to say that it basically believes these new accounting numbers are the true pension costs of the plan.

There has been a lot of criticism of these new rules. One problem is that they are so complicated that only the most sophisticated financial experts can comprehend them. There goes FASB's idea that these rules make everything more understandable. I have spent many hours discussing these standards with FSAs and Enrolled Actuaries trying to decide what this means, what that means, how do we do it, and what do we do about it. We're experts. I don't know what's going to happen when you give a financial statement with all these wonderful numbers in it to people who don't know that much about the pension field.

Another criticism of the new accounting standards is that the corporations with large unfunded liabilities are going to have to put them on their balance sheets now. Many of these corporations are exactly the ones that are either in or are just coming out of an economic decline. Generally, the hard manufacturing companies which are really in bad shape are the ones with the higher unfunded liabilities. These higher liabilities will make it very hard for them to obtain capital at a reasonable price. Interest rates that they are charged by banks will go up, further impeding their recovery.

Another criticism focuses on how the new standards allow gains from asset reversions to be recognized all at once. This creates a pretty big distortion in the company's financial statement. The company realizes big gains up front instead of having them spread out over a period of years. One comment was made

PANEL DISCUSSION

that many times when a company terminates a plan to get the extra assets, the company is not really doing it to make its financial books look good -- it's doing it because it needs the cash. Now these companies are going to get the best of both worlds; their financial books are going to look really good, too.

The combination of these new accounting standards with the asset reversion immediate gain can have a drastic effect on what pension expense is going to be for the year. An example of that is DuPont. Under the old standards, DuPont would have had to expense \$109 million for 1985. Under the new standards, which it not surprisingly went to earlier than it had to, it got a pension credit of \$21 million for the year -- a nice boost to profits. Of course that is a one-shot deal, but even in the future I think that DuPont's pension expense will still be lower than it would have been at the original \$109 million. Another example is AT&T. I understand that AT&T went to the new accounting standards and was able to save \$100 million in pension expense. This is where we are feeling the brunt right now in the consulting area. Clients that have made the asset reversions in earlier years are the ones that are saying they want to go to the new standards early.

The new accounting standards are effective for years after 12/15/86, but companies are allowed to switch early. And all the companies that are going early are the ones that can really benefit from this, usually because they were involved in asset reversions. Even those not involved in asset reversions could still do much better under the new standards, which require the use of current interest rates. If the current rates are higher than the interest rates used previously, the pension expense is lowered. The new standards also require the use of market value of assets or something reasonably related to it. Given the way the stock and bond markets have been lately, market values of assets are much higher than they used to be. Using the projected unit credit cost method in many cases is a much cheaper cost method in the earlier years of a pension plan than the other cost methods that most clients were using to expense. For those three reasons a company can really get a much lower expense even if it wasn't involved in an asset reversion.

Another complaint about the new accounting standards is that expensing decisions may impact the funding decisions. Companies may want to change their

AN OVERVIEW OF PENSION ISSUES

actuarial assumptions for funding to equal the assumptions being used for expensing. Throughout all the financial accounting statements the FASB never says the words "actuarial assumptions"; it says only "assumptions." I'm not so sure that they are actuarial assumptions, but they are assumptions. I would hesitate to use many of those assumptions to put into schedule B, but now it would be harder for me to fight with a client about why it should use more conservative assumptions for funding. The clients are still going to want to go the old way where they always thought they could fund and expense the same amount.

Another problem, or what could be a problem, with the new accounting standards is, Do these new accounting standards give too much power to auditors versus actuaries and clients? They really do give a lot of power to the auditors. The assumptions should be generated by the client, but it has to be agreed upon by the auditors. It is still the actuary's expertise that is needed to come up with assumptions. The actuary, with the client, should come up with some reasonable assumptions and present them to the auditors. If they do that, the auditors are going to be very ill-pressed to try to say that those assumptions are inappropriate.

Finally, will these accounting standards doom defined benefit pension plans? My only comment there is that it seems that some people have thought that would happen every time there has been a new set of regulations -- ERISA would doom defined benefit pension plans, TEFRA would doom defined benefit pension plans, and so on. They never did, and I don't believe the new accounting standards will either.

MR. JOEL S. FEINGOLD: I would like to discuss three new investment techniques. The first one, portfolio insurance, is used to assure that investment portfolios will maintain at least a stated value while preserving reward potential. There are a number of ways to do this, and they are something like buying insurance. You have to pay a premium to assure that your asset will not go down in value; however, you preserve the upside potential. The only give-up is the premium. This technique can be used for a whole portfolio or just one asset. Portfolio insurance has become a very popular investment technique,

PANEL DISCUSSION

partly because portfolios have gone up so much in value recently -- equity portfolios in particular.

One reason for the current popularity of this technique is that bonds don't offer the opportunity to reduce equity risk the way they used to. Interest rates are lower, so bonds don't give much of a cushion anymore with a very high coupon. Also, it used to be that stock and bond markets went in opposite directions. In general, if the economy was booming, stock prices would go up and bond prices would go down. Alternatively, when there was a recession or depression, bond prices would rise because interest rates were so low, and stock prices would be depressed. However, in the last year or two the charts show a dramatic correlation between stock price movements and bond price movements. You don't have the alternative of diversifying with bonds like you used to.

One way to achieve the stated objective is to buy insurance directly in the form of a put option. This is really like paying an insurance premium to protect yourself against a drop in price. For example, you could buy a put option on the S&P 500, a measure of the stock market as a whole, that insures it against more than a 6% drop in price. The cost of that insurance is 3%, so in the worst case of a 6% or more price decline, you've lost 9%. If the market crashes and goes down 50% you've only lost 9%. If the market goes up a lot, say 30%, you only make 27% because you've given up the 3% premium.

Put options are interesting in that they're usually considered to be a negative bet, having value when the market goes down. However, the strategy is really bullish strategy; if you think the market's going up 30%, the put option lets you make that bet by being fully invested in stocks but still having some insurance just in case your bet is wrong. Buying a put option in a sense lets you take more risk.

If you think the 3% premium is too much to give up from now to year-end, one thing you could do is sell call options to help pay for the put options. A call is just the opposite of a put -- it's a bet that the stock market will go up. You're giving someone else that bet and collecting a premium for the call option, but you give up the upside potential. For example, you may choose a

AN OVERVIEW OF PENSION ISSUES

strategy where the call option pays for the put option, but you give up all the upside above 11%. The best your portfolio can do from now to year end is up 11%. What you've done by buying the put and selling the call is reined in a distribution of returns of -6% to +11% from now until year end. You've cut off the downside risk, but you've also given up the upside risk.

Another strategy is dynamic asset allocation. This involves continually changing the balance of your assets in cash depending on the market movement, adding cash as the market goes down. At a certain point, you have really eliminated your downside risk. For example, say you start with 50% stock and 50% cash. Then, if the market goes down 10%, you've only lost 5% because you're only 50% invested. At that stage you might increase the hedge to 75% cash. Then if the market goes down a second 10%, you've only lost an additional 2 1/2% because you were only 25% in stocks. Even though the market has gone down 20%, you've only lost 7 1/2%. You keep adding more cash as the market goes down further, and if you follow the strategy totally, the worst you can possibly do is to be down 10%. Similarly, as the market goes up, the downside risk is so far away that you can afford to be more fully invested.

A third strategy is the stop loss strategy. Stop loss means you don't do anything until your portfolio has gone down a certain amount in value, say 5%. If your portfolio does go down 5%, then you use one of the other hedging strategies. An extreme would be to do nothing until you hit the stop loss limit, but at that point to sell out completely. That way you've only lost 5%. The advantage of the stop loss strategy is that there is no initial give-up on the upside. You don't have cash and you haven't paid a premium, both of which upset the upside. A further advantage of the stop loss strategy is that you really don't have to do anything at the moment. A combination of the above strategies might be most appropriate; the cost of each strategy should also be looked at.

The next topic I'd like to go into is the use of scenario-based analysis to measure investment risk. This time I'd like to concentrate on bonds rather than stocks. Scenario-based analysis utilizes more than just one measure of investment risk, such as beta for stocks or maturity for bonds. The longer the maturity of a bond, the more risk there is. For example, 30-year bonds

PANEL DISCUSSION

purchased in February and issued in February are already up more than 25%. A 30-year bond has more volatility than a one-year bond.

Maturity was the first stage in measuring the investment rate risk of bonds. However, not all bonds of the same maturity have the same investment rate risk. In the chart in Figure 4, if interest rates go down 3% in the next year, the 20-year Treasury Bond would increase 42.9% in value. Figure 4 shows what the total return will be over a one year horizon for different maturity Treasuries and different interest rate scenarios.

The total return, 42.9%, includes price change, interest, and interest on the interest. So it's a total return, as if you had bought the bond for \$100 today and sold it for \$142.90 a year from now. You're not actually selling it, but it does correspond to the market change in value as well as income received. Another Treasury Bond that also has a maturity of 20 years but has no coupons is much more volatile, returning 87.7% if interest rates go down 3%. Clearly maturity alone didn't capture the amount of risk in that portfolio.

The next step was duration. Duration takes the coupon payments into account. The reason the 20-year Treasury had less risk than the 20-year 0 coupon bond is that including the coupons as part of your cash flow makes the average maturity of the first bond shorter than the 20 years of the 0 coupon bond. Duration was considered a pretty good measure of the risk of bonds.

Duration multiplied by the interest rate change is a formula used for calculating price risk. If interest rates stay the same, the 3-year 0 coupon bond will return 7.5% over the next year. The formula using duration gives the change in the return for a given change in rates. Because there are no payments before maturity, a 3-year 0 coupon bond will have a maturity of exactly 3 years when you weight all the payments, and for the same reason it will have a 2-year duration one year from now. If rates go up 1%, you take the 2-year remaining duration times 1%, giving 2%, and in fact you have a 2% worse return corresponding to the price having gone down 2%. And similarly if the rates had gone down 1%, the price should have gone up approximately 2%. The return is indeed approximately 2% higher, at 9.6%. It turns out that for relatively

AN OVERVIEW OF PENSION ISSUES

FIGURE 4

ONE-YEAR RETURN ON TREASURY ISSUES

Current Coupon Treasury Notes and Bonds

	Total Return with Falling Interest Rates			At Today's Interest Rate	Total Return with Rising Interest Rates				YIELD TO MATURITY
	-3%	-2%	-1%	0	+1%	+2%	+3%		
YEARS TO MATURITY									
1	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.35
2	9.8	8.8	7.9	6.9	6.0	5.1	4.2	6.60	
3	12.2	10.4	8.7	7.0	5.3	3.7	2.1	6.70	
4	15.7	12.8	10.0	7.4	4.8	2.3	0.2	6.85	
5	18.6	14.8	11.1	7.6	4.3	1.1	(2.0)	7.00	
10	28.1	20.6	13.7	7.4	1.5	(4.0)	(9.4)	7.25	
20	42.9	29.4	17.7	7.5	(0.6)	(9.3)	(16.9)	7.40	

Zero Coupon Treasuries

1	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.35
2	10.3	9.2	8.1	7.1	6.0	5.0	4.0	6.65
3	14.0	11.8	9.6	7.5	5.5	3.5	1.5	6.90
4	17.7	14.3	11.0	7.8	4.8	1.8	(1.1)	7.10
5	21.1	16.4	12.0	7.7	3.7	(0.2)	(4.0)	7.20
10	40.0	28.2	17.5	7.7	(1.2)	(9.4)	(16.8)	7.55
20	87.7	56.0	29.7	8.0	(10.0)	(24.9)	(37.3)	7.85

The assumption used for the shape of the yield curve in one year is that it remains the same. This causes a pickup in expected returns for maturities such as the five year Treasury where the yield curve is positively sloped.

APRIL 10, 1986

PANEL DISCUSSION

small interest rate changes and for relatively short bonds, duration is a good measure of interest rate risk.

One problem with duration is that for very big interest rate changes and for very long duration bonds it doesn't really capture what happens. If you look at the 20-year 0 coupon bond, in the case where interest rates decrease 3% it gives a total return of 87.7%. An increase in rates of 3% gives a total return of -37.3%. Clearly this is not a linear relationship; it's actually a very favorable relationship. If you can afford to take that amount of risk, you practically double your money in the very favorable case, and in the unfavorable case it only decreases one third in value. So something else is going on here besides the duration. Mathematically it's the rate of change of the duration, which is called the convexity, and it's a favorable property of very long duration bonds. Although duration doesn't capture convexity, scenario analysis does.

There's another advantage of scenario analysis: it lets you examine an interest rate range. You may think interest rates are going to continue to decrease, possibly going down as much as 2% from now until next year, but feel it's also possible that interest rates will be as much as 1% higher. If you have a 5-year maturity bond portfolio, you have a range of returns from 14.8% to 4.3%. The scenario analysis can capture what your return range will be based on your interest rate range forecast. Duration is not capable of helping you do that kind of analysis. Figure 4 shows that with the 5-year bond portfolio, if rates go up 2%, you will still have a return of +1.1%. Even if rates go up pretty sharply, the portfolio will have a positive return for the year.

This concept is fairly easy to understand; I think most people can relate to it better than hearing that a portfolio has a duration of 4 or a duration of 5. The plan sponsor can quantify how much risk he is willing to take, perhaps saying that he's willing to take the risk that if interest rates go up 2%, his portfolio can go down 5% in value. With the scenario analysis you can determine that bonds with maturities up to ten years will fit into the acceptable range.

AN OVERVIEW OF PENSION ISSUES

A final disadvantage of duration when compared with the scenario-based analysis, which I consider to be the third generation after maturity and duration, is that some securities can't be captured by duration. What is the duration of a call option, or a 30-year bond that's callable in 2 years? There are some securities which can't be captured by maturity or duration.

My last topic is alternatives to cash. Cash is considered a good way to reduce investment risk, but what is cash? I think of cash as something that has very low volatility and a relatively fixed interest rate return. However, cash rates are very low at the moment -- three year Treasury Bills are 5 3/4%, and the standard investments of commercial paper in money market investments are not much higher. Can you lock in a higher return, say 8% or more, that's not very volatile? Figure 5 shows six different investments which offer returns of 8% or higher and which in my view have very little risk.

FIGURE 5

NEW ALTERNATIVES FOR CASH/MONEY MARKET INVESTMENTS

	<i>Estimated Yield</i>
Floating Rate Small Business Administration Loans (these are guaranteed by the U.S. Treasury)	7.9
High Coupon GNMA's	8.0
FSLIC or FDIC Insured CDs (these are guaranteed \$100,000 per qualified plan participant)	8.2
Purchase Stocks in S&P 500 or Value Line Index and Sell Futures Contract	8.5
Buy Stocks, Sell Calls on the Stocks, and Buy Index Puts (hedged equities)	12.0
Buy Stock After Merger Agreement (example buy General Foods at 118 and sell at 120 on merger date one month later)	20.0

The first example is floating rate Small Business Administration loans. You can buy a floating rate loan which floats every three months at prime minus one. Prime right now is 9%, so at the moment it's giving an 8% return, which

PANEL DISCUSSION

is much higher than Treasury Bill rates. Why are the rates much higher? One reason is that prime tends to lag other interest rates when they're going down. When interest rates drop sharply, banks do not want to lower their rates sharply because they want to keep the higher income. So they'll keep their rates up there a little longer, lagging behind the other rates which are dropping. On the other hand, when interest rates rise sharply, the banks in general will raise their rates sharply because again, they're considering their income from lending. So at the moment, these loans are yielding approximately 8%, which is much more than Treasury Bill rates, and the credit risk of this security is 0. Why is it 0? Because it's backed by the Small Business Administration, which is part of the U.S. Government. Since it is actually a part of the U.S. Government and not just an agency, it's the same as the U.S. Treasury, and it's backed by the U.S. Treasury.

Another type of security which is backed by the U.S. Treasury is GNMA's. GNMA's are mortgage securities -- you invest in a pool of mortgages just like a bank might. GNMA's are, incidentally, the only mortgage securities which are guaranteed by the U.S. Government; FNMA is a private corporation and FHLMC is a private corporation, although it's a quasi-government agency. GNMA has the same credit quality as the Small Business Administration and the U.S. Treasury. An example of a high-coupon GNMA yielding 8% is a 13% GNMA selling at a price of 108. Now at 13%, bonds selling at 108 actually give something like a 12% current yield: 13 divided by 108. The reason it is so high is that the homeowners have the right to refinance their mortgages. If half of them refinance their mortgages, you get a loss. You paid 108, but 50% of them are giving you back 100; you've lost 4%. So you'd have 12% less 4% for a net return of 8%. The risk of this investment is not a credit risk -- it's a top quality credit. The risk here stems from the possibility that more than 50% of the homeowners prepay. In an extreme, if all of them prepaid tomorrow, you've really had a big loss.

Why don't we think more than 50% of them will prepay? If you look at the statistics, the prepayment rate on 13% GNMA's in the last few months has only been about 30%. Second, if you look at surveys of mortgage bankers and Savings & Loan Associations handling these refinancings, they are, in general, at capacity. They can't handle all of the applications even at the 30% rate.

AN OVERVIEW OF PENSION ISSUES

Third, an investment professional can choose pools which prepay slower than average, for example, pools that were recently issued. A person who recently got his 13% mortgage just went through all the trouble of paying points, dealing with the legal situations, and going through the negotiations of getting a house -- a lot of hassles. There is normally some inertia before people refinance, even if it's financially advantageous, so newly issued pools are one example of GNMA's that tend to prepay more slowly than the average. Other factors affecting prepayment rates might be geographic distribution or other demographic characteristics.

A third example are FSLIC or FDIC insured CDs. You sometimes see in the paper a bank or thrift that will offer an 8% or 8 1/2% CD rate for 30 days. This is actually a very good investment if it's FDIC or FSLIC insured, because even if this bank is in Texas and all its loans are to an oil driller that went bankrupt, these are guaranteed by FSLIC and FDIC. FDIC insurance goes up to \$100,000, so how does this protect a \$150,000,000 pension fund? The answer is that the regulations for both FSLIC and FDIC state that it's \$100,000 *per qualified plan participant*. So for a plan qualified under ERISA, the insurance covers \$100,000 per plan participant, and in fact it's a much bigger limit than you would otherwise think. I have personally called both FDIC and FSLIC to confirm that.

A fourth example is an arbitrage of buying stocks: buying all the stocks in the S&P 500 and selling a futures contract against the S&P index. In a classic arbitrage you earn a cash rate of return. For example, if you bought gold today at \$350 and sold a contract to sell the gold back in three months at \$355, you've blocked in a certain amount of return. Normally the return you get from such an arbitrage in the futures market is a cash return looking like Treasury Bill rates. You're doing the same arbitrage with the stock market by buying a basket of stocks and selling an S&P futures contract.

However, although it should look like a cash return, it doesn't always. It is sometimes lower and sometimes higher than a cash return because of the volatility of the stock and futures markets. So when the rate is much higher, as it was a month ago at 8.5%, you can lock in that high return for a few months. This is a dynamic strategy; it's a strategy to do when that rate is

PANEL DISCUSSION

available. Although you really have to see what rates are available at the time of implementation for any investment strategy, this is a strategy which has been volatile in some sense; in some periods of time it's available, and other times it isn't. The other strategies have been available almost any day you looked at them in the last year.

The fifth strategy is to buy stocks and to sell call options against the stocks. Remember from the dynamic asset allocation discussion that you can get a premium for giving up the upside. If you're making an investment which looks like cash, when you're getting a little bit more than cash, you're not worried about making 20 or 30%; you're just looking to earn a good fixed return. If you're willing to give up the upside, what you do is have a portfolio of stocks and you sell call options against the stocks to add to the returns. On this basket of stocks you collect the dividends, you collect the option premiums, and the risk is really that the market as a whole goes down a lot. Say IBM is at 150, and you sold a call option at 150 to give up the upside and got 5 points for that. If nothing happens, you've gotten the 150 plus the 5 points plus dividends. Even if the stock went down moderately, to 145, for example, you're ahead. Although you lost 5 points on your stocks, you made up for it with the option, and you more than made up for it with the dividends. The risk is that IBM goes from 150 to 120, in which case you're not covered; although you got your 5 points for the option, the stock went down a lot more than that.

How do you protect against the market as a whole crashing? You buy put options on the index. It's cheaper to buy put options on the index than on particular stocks. Figure 6 shows a table of returns month by month, and you will see from the first column of the table that the returns are pretty consistent whether the stock market as a whole was up or down. There were four or five months where there was a negative return, but there were a lot of months where the S&P was down and the strategy was up. This distribution of returns gives a 12% annualized return. The standard deviation of returns is not that great; it is naturally bigger than for three month T-bills, but if you compare it with two year bonds it actually has a similar standard deviation.

The last strategy shown in Figure 5 involves buying a particular stock after a merger agreement. A good example is General Foods; you could have bought

AN OVERVIEW OF PENSION ISSUES

FIGURE 6

HEDGED EQUITY CASH ALTERNATIVE

MONTHLY RATES OF RETURN

<u>YEAR</u>	<u>MONTH</u>	<u>RETURN</u>	<u>S & P 500</u>	<u>3 MONTH T-BILLS</u>
1983	SEP	0.14	1.37	0.77
	OCT	1.35	-1.16	0.75
	NOV	-0.45	2.10	0.76
	DEC	1.07	-0.52	0.77
1984	JAN	1.00	-0.56	0.77
	FEB	-1.99	-3.51	0.68
	MAR	1.29	1.73	0.70
	APR	1.84	0.95	0.80
	MAY	-0.32	-5.53	0.81
	JUN	0.22	2.15	0.82
	JUL	-0.30	-1.23	0.84
	AUG	2.23	11.00	0.86
	SEP	1.67	0.03	0.87
	OCT	0.92	0.37	0.83
	NOV	1.34	-1.13	0.77
	DEC	1.30	2.62	0.71
1985	JAN	3.30	7.77	0.68
	FEB	0.44	1.22	0.68
	MAR	1.24	0.07	0.69
	APR	0.64	-0.11	0.69
	MAY	1.42	5.75	0.65
	JUN	2.35	1.55	0.60
	JUL	0.37	-0.15	0.61
	AUG	1.16	-0.85	0.62
	SEP	-0.47	-3.12	0.61
	OCT	1.67	4.60	0.62
	NOV	0.02	6.84	0.62
	DEC	1.90	4.83	0.61

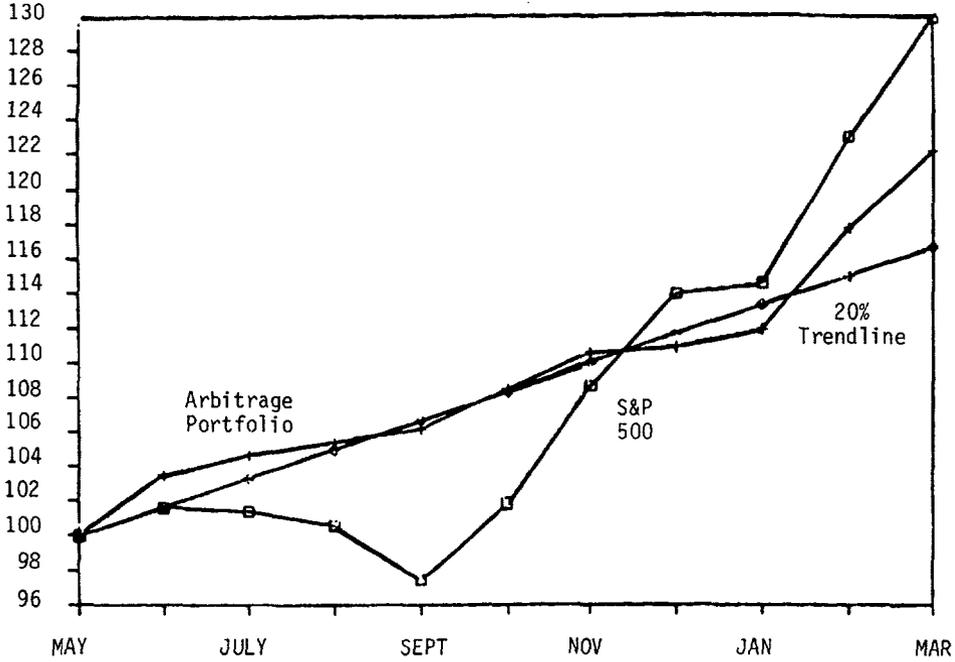
PANEL DISCUSSION

General Foods at 118 after the merger was announced and sold it at 120 on the merger date one month later. An individual buying 100 shares is not going to benefit, because he has to pay a high tax on the one month short term capital gain and because he's going to lose most of the profit on commissions. However, a pension fund which can buy 100,000 shares of stock instead of 100 is going to pay a very low commission rate and also is not going to pay taxes. So the return is very attractive to a pension fund. Actually, this particular deal had a trick; you could have bought options -- for example, an option of 38 going to 40 in a month -- at an even higher rate of return.

This strategy of arbitrage for deals that have already been announced is one in which you want to have a basket of stocks, approximately 30 of them, so that if one or two of them don't work out you still have more than a 20% return on average. The graph in Figure 7 shows how our arbitrage portfolio has done. The straight line is a 20% trend line, and the arbitrage portfolio has pretty consistently been along the trend line. The main deviation was recently, and has actually been higher than the 20% trend line. The other line is the stock market as a whole; it has done better but is much more volatile. Compared with cash, the arbitrage strategy offered a much higher return: 20% vs. 5 3/4%.

In summary, there are a number of new techniques available which can add value in terms of reducing risk while at the same time preserving high returns from an investment portfolio.

BUY STOCKS AFTER MERGER AGREEMENT - MONTHLY RATES OF RETURN



AN OVERVIEW OF PENSION ISSUES
FIGURE 7

