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Plan Design—Defined Benefit Only: It's Not Your Father's Oldsmobile Anymore (Autopia)

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Summary: This session focuses on the new types of defined-benefit plans: cash balance, pension equity, life cycled, etc. The issues covered will include the regulatory environment, funding and accounting issues, and benefit adequacy.

Mr. Matthew T. Sloan: Eric Lofgren is with Watson Wyatt Worldwide. He's the northeast region retirement practice director. It's appropriate that he's speaking on this topic because, basically, Eric is one of the original architects of the pension equity plan (PEP), which he put in place in 1992 with RJR Nabisco. That was the first widely acclaimed pension equity plan, so Eric is well suited to talk about hybrid defined-benefit plans.

Mr. Eric P. Lofgren: There are three common types of defined-benefit hybrid designs that have been mentioned in the press recently. First, is cash balance.

A cash-balance plan is a defined-benefit plan where the benefit is expressed as an account that earns a set in the plan rate of interest. The accrued benefit is basically your lump sum accumulated to 65 at the interest rate in the plan, (possibly a variable rate), and then divided at 65 by an immediate annuity factor. An equivalent expression would be the lump sum divided by a deferred-to-65 annuity factor. The cash-balance plan is a career-average plan, and it gives interest.

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Imagine you have a lump-sum benefit, and it's tied to final average pay, and final average pay is going up, perhaps, 4–5% a year. On the other hand, suppose you have the same compensation credits in a cash-balance account growing with interest. If the cash-balance plan interest rate was the exact same 4–5%, the benefit would be the same. Even though the cash-balance plan is a career average plan, the interest is a proxy for salary increases. They serve the same function. If the plan interest rate is as high or higher than the typical salary increase experienced over time, the cash-balance plan, despite being career average, will be more expensive than a lump-sum plan in which the account grows with final average pay.

If interest goes up by more per year than the average salary increase for the same compensation credit scheme, the cash-balance will be a more costly plan. That's contrary to accepted wisdom. Accepted wisdom is it's career average; therefore, it's cheaper than final average. Accepted wisdom is incorrect in this case.

There are approximately 300 cash-balance plans in existence. Cash-balance plans are currently very popular. There are a number of high profile companies that have gone to cash-balance in 1996. They're growing, in my subjective estimate, at about 50 a year. The design has been around for 12 years.

There are at least 15 large companies that incorporate cash-balance plans. Cash-balance plans are starting to take off with small companies as well. So you'll see many smaller firms putting in cash-balance plans if they have 500 lives, 750 lives, or even at 15,000-life companies, or even 100-life companies, as well as the ones that have always been Fortune 100 companies.

A second type of hybrid plan is a life cycle plan. In a life cycle plan, you have a lump-sum benefit at 65 which equals X% of time service, times final average compensation. The expression is similar to a traditional plan except it's a lump sum being defined instead of an annuity. Also the accrued benefit is a lump sum divided by an immediate annuity factor at age 65. It's a very simple expression of age 65 benefit. Unfortunately, if somebody leaves early, you have two choices. You can keep the simple expression and have an unreduced benefit at age x, or you can have early retirement reduction factors.

Assume somebody is 45 with 15 years of service, and the life cycle formula is a very simple 7% times final average pay, times service. If you worked ten years, your lump sum at 70 is 7% times ten, or 70% of final average pay payable at 65.

If you want to pay the lump sum earlier than age 65, and you don't want to provide a 100% subsidized benefit at any age, you need an early retirement reduction factor. Perhaps you would have a 2% reduction for each year prior to age 60. If

this 45-year-old wanted a lump sum now, that turns into a 70% factor, and the formula ends up being final average pay times 7%, times, in this case, 15 years. That gives you 105%. Then you have to multiply it by a reduction factor, which is 70%.

I will introduce another example. If this person was 30, you'd have 30 years of reduction prior to age 60 at 2% and your reduction factor. Instead of multiplying by 70%, you'd multiply it by 40%.

I'm aware of five life cycle plans in existence. They're also known as retirement bonus or a cash-value plans. They were created in 1991. They've had essentially no growth. They're different from a pension equity plan. The reason they had no growth was to express the benefit in a lump sum to apply—to make it attractive to young people.

However for a young person to actually get an immediate benefit upon leaving, you'd be multiplying the benefit by an early payout factor of 0.3, 0.4, 0.5, or something like that, which seems like a huge reduction. It tripped over itself in the communication. Actually, it's an interesting alternative to the others if you're not allowing lump sums, but are simply expressing it this way. It really doesn't work when you pay out the lump sum immediately because then you have to have that reduction factor.

The pension equity plan was designed after the life cycle in late 1992. The first one was introduced on January 1, 1993. They were trying to go where life cycle was trying to go but avoid the problems. The lump-sum benefit is unlike the traditional plan or the life cycle plan. The expression of the formula is like a cash-balance in that it defines the benefit now, and it defines it in lump sum terms. If you had a formula expression, and it was 7% a year times service, and you had ten years, it was 70%. That would be 70% as a lump-sum payable now, not at 65. The benefit at 65 would have to be the actuarial equivalent to 70% currently.

The definition of accrued benefit would be your accumulated lump-sum percentage credits divided by a deferred to 65 annuity factor. An equivalent expression would be to take the lump-sum benefit determined using the interest and mortality which are inherent in the deferred annuity factor, and then divide by an immediate factor at 65. If you think about it, the expression of the accrued benefit, once you get your current lump sum, is basically the same for a cash-balance plan or a pension equity plan. It is very different from the life cycle or the final average plan in that aspect.

On the other hand, the PEP is very different from the cash-balance. Cash-balance is a career average plan with individual accounts earning interest expressed as a lump

sum. Pension equity is final average, no individual accounts, and no crediting of interest, though expressed as a lump sum. If you look at it that way, only one of four primary characteristics are in common. It is a distinctly different family.

At this point in time, there are about 40 PEPs in existence, including three or four at Fortune 100 companies. Currently the number is doubling every year. There were many announced in the last 12 months. The nature of the pension equity plan is equidistant, depending upon what scale you use to judge, between traditional or life cycle and cash-balance.

Since the life cycle design really didn't take off, from this point forward, I'm going to confine myself to pension equity and cash-balance. The two types of plans can have very similar accrual patterns.

Pension equity formulas tend to use age grading, unlike cash-balance plans which tend to use service or age/service point grading. Either one could use any of the three approaches, but the reasons one would choose one design or another, tend to lead you towards service or point grading for the cash-balance, and to age grading for the pension equity. We'll identify that later.

For example, I am 50 years old with 12 years of service. My first two years were at age 38 and 39. I had two years at 6%. Then I had five years at 8%, and I had five years at 11%. Adding up 5 years at 11% and 5 at 8% and 2 at 6% gives 107% of final average pay. If I leave now, I can take 107% of final average pay as a lump sum, an immediate annuity, or a deferred annuity converted at factors in the plan, (typically General Agreement on Tariffs and Trade (GATT) factors), at least for the immediate part. If the plan allowed a deferred lump sum, it would have to define the lump sum now and then grow it at interest. Typically, PEPs don't allow deferred lump sums.

Benefit delivery is another difference. The cash-balance plan depends on compound interest. If you're mid-career at hire, you don't have enough time for compound interest to get rolling. If mid-career hires were crucial to you, you might lean towards a PEP. If they weren't crucial to you, you might lean more towards a cash-balance because, after all, an account is an easier expression than a lump sum percentage times service.

On the other hand, a cash-balance plan is always going to do well for a 40-year career. The reason is cash-balance plans are put in for young or mobile employees. You have an account and it grows with interest. If you have a young and mobile work force, you're probably thinking of a full career as being 20 or 25 years. You get a benefit formula that works out right for maybe 25 or 30 years tops. If some-

body stays around 40 years, the compound interest starts to take off, and the benefit gets quite large.

When PEPs were designed, they were also looking at a generational issue, which is if somebody retires, they probably have about 15 years of 401(k). The 401(k) started as savings plans, and it used to be much easier to get money out of them. Many people used to take the money out to buy a stereo!

The 401(k) now has excise taxes, and the excise taxes were raised. People are tending to currently regard 401(k), as accumulations that have become more solid retirement plans and it's harder to get the money out. People retiring now have 15 years of accumulation. People who retire 15 or 20 years from now will have 35 years of accumulation. Compound interest will be five or six times the money, and five or six times the retirement benefit.

Again, if your communications concept is: "Here's money going into your account," the focus is going to be on the compensation credit, how much goes into the account. The PEP tends to focus more on the benefit delivery. If your concept of equity is in how much we deliver into your account this year, cash-balance delivers about the same to the young person as the old person.

If your concept of equity is in terms of benefit at the time of delivery, cash-balance is going to get excessive if you let it roll on 40 years, especially for people retiring 15 years from now, who also get full career 401(k).

Let's look at a couple more points on benefit delivery. One of the chief criticisms that has been made of cash-balance plans in the past has been that they tend to disfavor fast trackers. The growth of interest can't keep up with the growth and pay. PEP doesn't even have this issue because it's a final average plan. If your benefit is $x\%$ of the pay, by definition, it's keeping up with your pay. I think the fast tracker issue is really an unfair hit on the cash-balance plan.

Let's see what happens to the benefit delivery for a fast tracker. The cash-balance is at least as good as the pension equity for 25 or 30 years. It only takes off, compared to the pension equity, in the last couple of years.

It's a little bit of an unfair criticism on the fast tracker because, after all, if someone is getting 3% higher than the average raise for 30 years, which is when you first run into trouble, your fast tracker is probably best addressed as president or CEO. He or she is probably getting some type of supplemental executive retirement plan (SERP) or excess plan benefit on the side.

There is a different problem though, which is the slow tracker. It's only a problem if a company has an employee who hasn't quite been doing the job. They're nice people. They hang in there. They have received good performance reviews for years. Then after 20 years with the company, the person is out of touch with the times, out of touch with the company, overpaid by 50% of what anybody else would pay for him or her. However, you have this 20-year track record of good performance reviews, even if you gave the 2% raise year after year. Maybe they were good employees, but the times changed, and different skill sets are needed for the job than in the past. The market value of the group of employees decreases after they are 20 years into their careers, because they no longer have the best mix of skills. It's your better people (or people ready to retire) who leave in a window. This person just hangs on.

A cash-balance plan gives a slow tracker a huge, huge benefit—perhaps triple a fast tracker's! The PEP and the traditional plan benefits are about the same as before. That's startling, but it's a true result.

Some companies have put in defined-contribution plans or cash-balance plans because they are concentrating on getting the best ten years of somebody's career. They assume they're going to get the best ten years of the career, and they design for this. Their idea of a career employee is: come in at 38, and leave at 58. In the design phase, they looked at the 20-year careers and average salary increases. Nobody designing a cash-balance plan ten years ago ever looked at the effect of a class of people hanging around for 35 years who received crummy raises the whole time.

What happened was this: the plans unintentionally created an extra incentive for this slow tracker to develop and remain, and we're starting to see it now that they've been around for ten years. For example, assume that an account for a slow tracker has grown to three times pay. The compensation credit is 8% of pay, and the interest credit is 8%. You get 8% interest on 3 times pay. That's 24–32% of pay. That's a darn good benefit. The company is giving this person an increase in his or her account of a third of pay this year, and next year it's going to be an even higher percentage of his or her pay. This person has a great incentive to stay.

One of the interesting statistics that I've managed to see is that universities used to have an average retirement age of 65, and they had very generous defined-contribution plans and nothing but. Then the maximum retirement age changed to 70. The average age of retirement instantaneously changed from 65 to 70. They're being given incentives to stay on. Defined-contribution or cash-balance plans, if you're a low raise employee, encourages you to stay in forever. There's an issue that these plans have created that mentality.

How do you choose cash-balance versus PEP or vice versa? They have a lot in common. They're both portable. They're understandable (the cash-balance is more understandable for employees because it's an account). Neither one has a take away for integration or for early retirement. You don't have a Social Security offset. You don't have an early retirement reduction. Your account, or your lump sum, just builds from one year to the next. Both tend to eliminate the early retirement cliff when they're put in; thereby reducing employer cost. Eliminating that cliff is the engine which pays for the higher benefits at age 54 and earlier. Both plan designs are very attractive to the young and mobile employees.

I don't know how many of you are involved with attitude surveys. I used to do a lot of attitude surveys in the mid-1980s when cash-balance plans were first introduced. When you did an attitude survey on the benefits in a company at that time, the most popular benefit would be the 401(k) plan. The least popular benefit would be the traditional final average plan. Why? It was an accurate perception by a young and mobile work force. The traditional plan wasn't giving them much. If they stayed in one place they got a good pay out, sometime in the distant future.

Both of these designs give a much better pay out early in the career, and so, naturally, young and mobile employees, being smart, pick it up and like them.

What are the important differences between cash-balance and PEP?

In the simple vision, and all I've been giving you is the simple vision so far, PEP protects mid-career hires. PEP is tied to final average pay, providing benefit adequacy. Cash-balance doesn't. Anything that's an account growing at interest may or may not relate to final average pay. It's just impossible to tell. Cash-balance does have extra administration because you have traditional defined-benefit administration plus individual accounts. There's the slow tracker issue, and there's this generational equity issue.

That's too simple because cash-balance plans are very popular, and there are good reasons for it. Let's look at the real differences. There are two real differences between these plans, and they speak to when you should put one in versus another.

The two designs have different concepts of equity, and they have different embedded concepts of the employer-employee contract. Equity is a subjective thing. As I said before, for cash-balance plans, equity is measured by the contribution to your account this year, the year you did the service. It has a short-term horizon. Traditional final average plans use a career horizon. They measured equity by the benefit you get at age 65.

Pension equity plans have a horizon which is in between. Their horizon is not the year of accrual or of retirement, it is the year of termination. They measure in annuity terms at older ages and in a lump sum terms at earlier ages. It's a dual horizon. Which horizon fits depends on what kind of employees you have.

If your perspective is right now, cash-balance is the one that is performance based. The contribution this year is a percentage of pay. If you have a ten-year horizon, the PEP is the one that is performance related. The benefit delivered from a cash-balance plan is the best of all plans for the slow tracker and the worst of all plans for the fast tracker. In some sense, that's the exact opposite of pay for performance. It depends on your time horizon. Which plan fits depends on your time horizon, and your time horizon depends on your view of the employer-employee contract.

Let's look quickly at this last issue. Traditional plans had a concept: "We're a family. The company is the father. We're paternalistic. You stay with us for your career, and we'll take care of you with an adequate retirement income in annuity terms. We won't give you a lump sum because you might go blow it. It's measured at retirement."

Now for cash-balance plans. The work force became suddenly young and mobile in the early 1980s and the late 1970s. The cash-balance plan was almost inevitable. Demographics drove the development of the cash-balance plan. Cash-balance plans have a short-term perspective: "let's look at this year's harvest, this year's profits, and we'll share the bounty with you. We'll give you a lump-sum contribution tied to your pay."

Very often, the new resources and rewards approach that has been a new cash-balance variation is cash-balance plus stock options or profit sharing on top, tied to this year's performance. It's a one year at a time concept of an employer-employee relationship. If we do well this year, you do well this year. We do poorly this year, you do poorly this year. There's no long-term commitment. There's no medium-term focus. It's profits now. PEP is different. It fits with the employer that has a different mission. We're a partnership. We'll provide you training from time to time. You need to take advantage of it. Our needs are going to evolve. We'll give you the means for your skills to evolve with our needs, if possible. If you take advantage of our training, and your skills keep up with our needs, then we have a partnership, and the length of our relationship might be long. If a disconnect happens between employer needs and the employee skills, your length of service is likely to be fairly short. If it's short, we'll measure what we give you as a lump sum. If you stay for a career though, we'll measure it in annuity terms because we know that what's important to you. It will be an annuity that ties into your pay so you can

maintain your standard of living, especially for an older employee or a longer term relationship.

The reason, I think, PEP took off is because baby-boomers are turning 50 at a rate of 8 a minute. I don't know if you've seen the data. People in their 60s think defined-benefit plans are better than defined-contribution plans by about a 20 to 1 margin. People in their 20s think defined-contribution plans are much better by about a 10 to 1 margin. That's not at all a surprise. People are using their heads. Which plan benefits a person at a certain stage the most.

The tragedy of the traditional plan is even if you're somebody who's going to be in one place for 40 years and really benefit from the traditional plan, you'll spend your first 30 years hating it. It's only at the tail end that you'll like it.

Demographics are changing with aging baby boomers—people hate that phrase. We don't like to be called an aging baby boomer, but that's what we are. We're aging baby boomers. We're not going to be changing jobs every three years once we reach 50 like we did when we were 28. It's just not the way it works. It hasn't worked before that way. There hasn't been a change in tenure trends within older age brackets.

Which plan fits best? It's not a matter of which is better or which is worse. It's which better fits the demographic needs, demographic outlook, and the employer goals of a particular employer for the sake of the work force.

From the Floor: You mentioned that most PEPs don't allow for lump sums beyond the one at the point of termination. I didn't know if that was philosophical or if that was because of any difficulties? Could you just expand on that a little bit?

Mr. Lofgren: The problem is that the whole theme is that the lump sum is a percentage of your final average pay. If you allow a lump sum after the termination date, and if we determine 100% on \$50,000 pay and we have a \$50,000 lump sum now, it's not permissible to give the same \$50,000 lump sum later as well or I would be using an actuarial interest factor of zero. The plan would fail 411(b) at a 0% factor. So you'd have to increase the lump sum with interest, for the period from termination until later payment of the lump sum.

All of a sudden you're switching gears. You're not a defined contribution. However, nobody elects deferred cash anyway if they can get cash now. It's not like you're avoiding options that people want. What most PEPs have done, if they allow cash, is simply say, we won't allow deferred cash because it complicates the communication with no real gain.

There is some possibility that the federal government interpretation will have an affect on PEP by mandating that we may have to allow deferred cash. If we do that, I typically use a 4–5% interest rate during the deferral period, and GATT rates at the immediate—with a deferred annuity factor.

I would just have the account grow after termination at the same 4–5%. Nobody would elect that because it would be obvious you could just transfer it to an individual retirement account (IRA) and do much better.

If we have to allow lump sums after terminations, it will be technical with no practical effect, and it would be a pain in the neck.

Matt is a founding partner of Davis Conder Enderle and Sloan in Chicago. Prior to that, he was a consulting actuary at Towers Perrin with a national role in asset/liability management. I recall hearing about him when he was serving in that role in his 20s; it was very impressive. He received his undergraduate degree in actuarial science from Drake University and an MBA from Harvard. He's an ASA, a member of the Academy of Actuaries, and an Enrolled Actuary.

Mr. Sloan: What I want to do is touch on several issues and ideas that will be similar to Eric's discussion. I'm also going to add additional wrinkles as we look at these types of plans. I agree with Eric that there are different situations that call for different plans. Basically, it's a matter of balancing trade-offs between the level of benefit delivery and how well that fits with the cost constraints facing the plan sponsor. There's another dimension to it, and this relates to the way the plan is financed. For those of you who attended the session on defined-contribution plan design, an issue discussed was the dilemma regarding investment risk, and the role investment policy plays in the plan design decision. It's an important distinction and an important element of cash-balance and lump sum, or pension equity plans. There is a financing decision—a decision as to whether the sponsor or the employee is going to control the financing. This is a key element that we're going to address as we go through this information.

I'm going to start off with some examples that highlight trade-offs in choosing among the four types of plans. I'm going to include defined-contribution plans because it's important to compare the financing difference between defined-benefit and defined-contribution plans. The four types of plans are the traditional defined-benefit plan, a defined-contribution plan, an account balance defined-benefit plan (a cash-balance plan), and a lump-sum plan (pension equity plan).

To understand the trade-offs, we're going to focus on the underlying economics of how the plans work; with regards to where the dollars are being focused and the cost implications of various choices for benefit levels.

The model used compares accrual patterns among the alternatives. Then, using a standard set of assumptions for decrements and investment returns, the model determines an average cost for each of those accrual patterns. Once we have done an initial comparison, we can use this simple model to look at the trade-offs between design alternatives and cost.

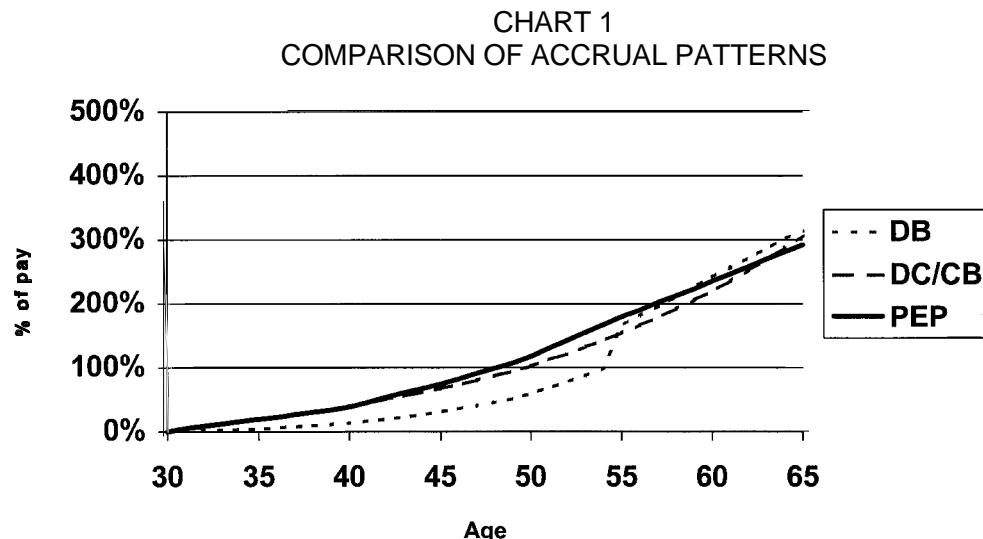
These examples use a sample participant, age 30, and follow the accrual pattern for this individual through age 65. In the examples we're showing, on the defined-benefit plan side, a typical integrated plan. The formula is 1% of final average pay up to a breakpoint, which is covered compensation in this example, and 1.3% over the breakpoint. We're also going to assume that the plan has subsidized early retirements, so the accrual pattern will show a cliff effect. The subsidy reflects early retirement reductions of 4% per year from 65 to 55.

In the initial example, the defined-contribution plan and the cash-balance plan are going to be modeled as having the same accrual pattern, an employer contribution rate of a flat 3.75% of pay.

We are going to have four age bands with a formula that is expressed in terms of lump sum credits. These credits are applied to final average pay. Lump sum plans can have a pay breakpoint. In this initial example, we're keeping it simple with no breakpoint. The formula for the credits is a 5% of pay lump-sum credit from age 30 to 39; 8% from 40 to 45; 10% from 45 to 49; and 13% from age 50 and above.

Again, the math is fairly simple. There are ten years of service between 30 and 40; five years between 40 and 45 and 45 and 50; and 15 years from 50 and 65. So the percentage at age 65 would be 335% of final average pay. This equates to about three times final pay. In all the charts we will review, we're going to show benefit values relative to final pay.

In Chart 1 the lines are practically on top of one another in this example. This is by design. The idea here was to produce approximately the same benefit at retirement under all four types of plan design. Comparing accrual patterns and benefit levels at retirement age is a common aspect of a design study. Whether looking at income replacement at retirement, or some other criteria used to measure value to the participant, this type of analysis is essential. Chart 1 shows that you can take any of the four plan design paths and engineer them to get to the same point by retirement age.



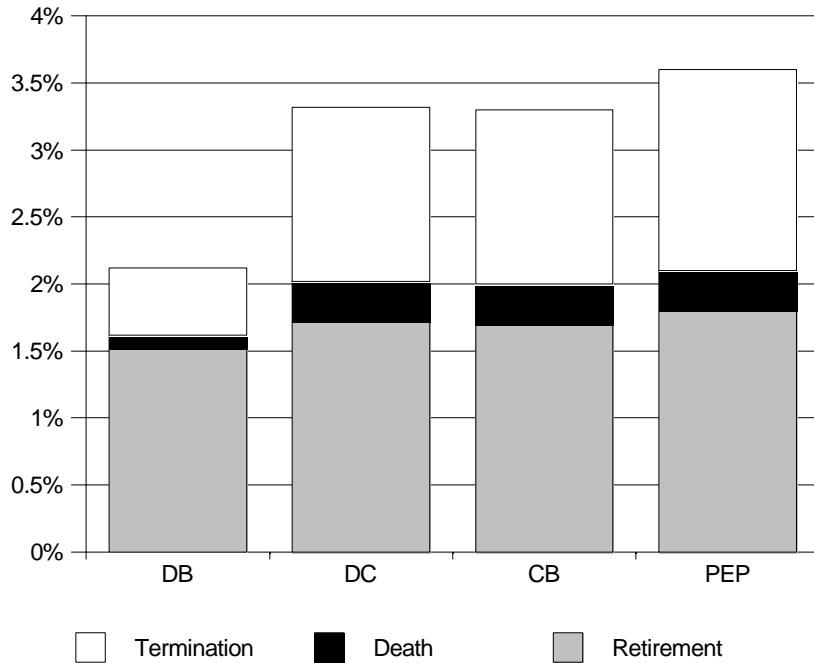
A common issue faced when designing a cash-balance plan or a pension equity plan is the higher accrual rate in the early years of an employee's career. If we focus on the portion of Chart 1 prior to age 55, we can see that the two top lines, which are the PEP and the defined-contribution or cash-balance plans, have much higher values than the traditional defined-benefit plan. This has very important cost implications.

Chart 2 shows the dramatic impact this can have on cost. Because there is more value directed to those who terminate prior to retirement, the overall cost for a defined-contribution plan, or an account-balance plan like a cash-balance plan, can be much higher than the cost for a traditional defined-benefit plan. Chart 2 summarizes the overall cost as an average percentage of pay over the employee's career. This cost is also broken down by decrement. The bottom section of each bar is the retirement decrement. You can see that the costs are comparable among all the different alternatives for retirement benefits only.

There's a slice in the middle of each bar that represents the cost of providing death benefits. The top portion of each bar is the cost of termination benefits. As you would expect, for the defined-contribution and cash-balance plans, and for the pension equity plan, the cost is quite a bit higher than it is for the traditional defined-benefit plan.

I mentioned that we were also going to consider the cost implications of how the plan is financed—in other words, how the plan assets are invested. For the costs shown on Chart 2, we have assumed that all the plans have the same underlying investment return. This chart reflects a 9% return assumption, which might be a reasonable expectation for a balanced portfolio with a healthy allocation to equities.

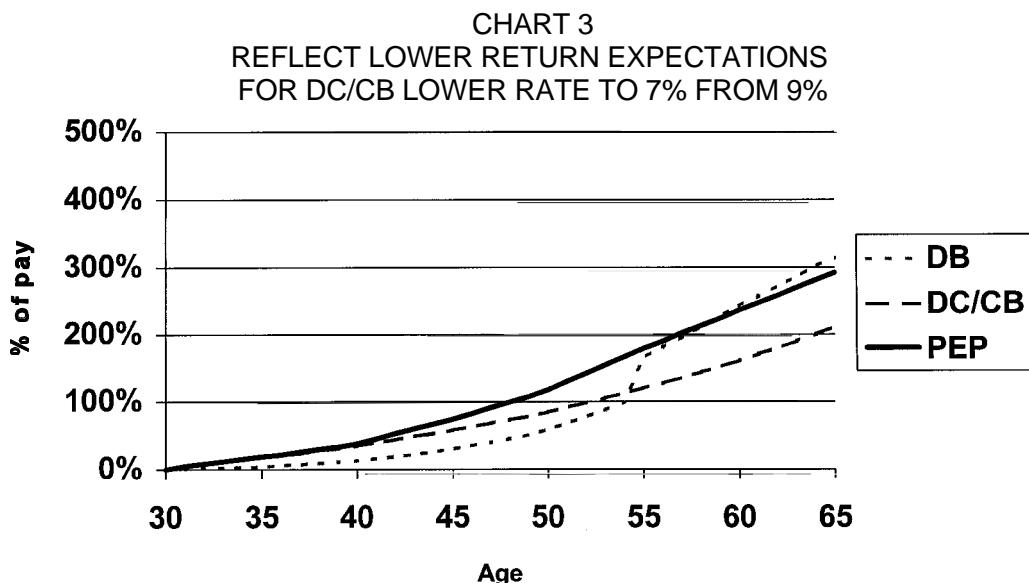
CHART 2
COMPARISON OF COSTS



In practice, not all the plans have the same underlying portfolio backing them, and so they don't all have the same returns. That's the issue I mentioned earlier which was discussed at the session on defined-contribution plan design.

Defined-contribution plans tend to have a much more conservative mix of assets. In other words, they are less likely to have an equity component large enough to result in an overall expected return of 9%. Cash-balance plans typically also reflect a fixed-income type crediting rate, and not the higher return that might be expected from a balanced portfolio.

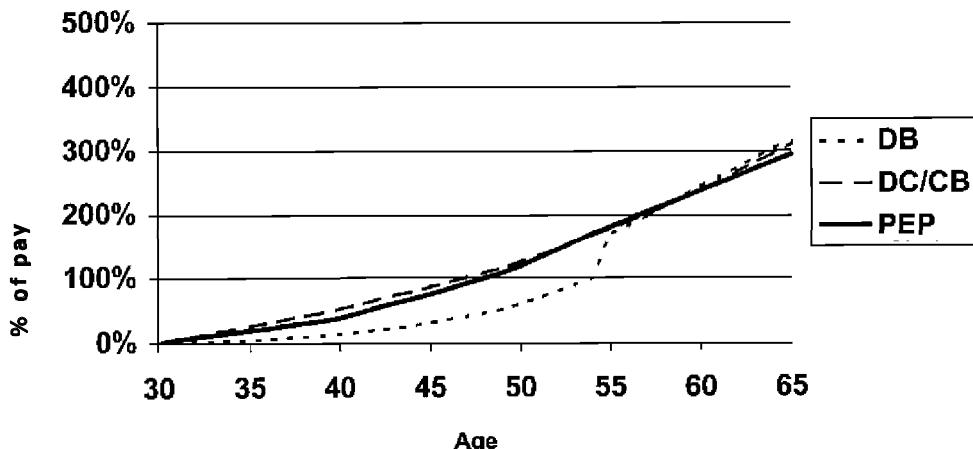
To illustrate this difference, we can update our model to reflect lower earnings on the defined-contribution plan. Chart 3 shows the impact on the accrual pattern of defined-contribution or cash-balance accounts growing at 7%, instead of the 9% assumed for Chart 1. What we see in Chart 3 is that the PEP and defined-benefit lines stay the same as in Chart 1. The line that represents the defined-contribution and the cash-balance plans now ends up at a much lower level in the retirement years. Under these plans, employees are still getting the same 3.34% of pay allocated to their account each year, but the account balance is only growing at 7% instead of 9%.



If the objective is still to have a comparable benefit at retirement, design changes to the defined-contribution and cash-balance plans are required. One alternative is to raise the allocation percentage each year from 3 to 3.34% to something higher. To illustrate this, we have rerun the numbers assuming a contribution rate of 5.5% (Chart 4). This brings the cash-balance and defined-contribution plan line back up to the defined benefit and pension equity plan level by age 65. That's a 50% increase in benefits provided each year, and a 50% increase in cost to the employer. Chart 4 begins to highlight the significant difference in termination benefit levels between the traditional defined-benefit plan and these account balance type plans (defined contribution and cash-balance). If you look at the portion of Chart 4 between the ages of 40 and 50, you can see that the cash-balance, pension equity, and defined-contribution plans can have a much larger benefit than the traditional defined-benefit plan; sometimes it is a multiple of two or three times larger.

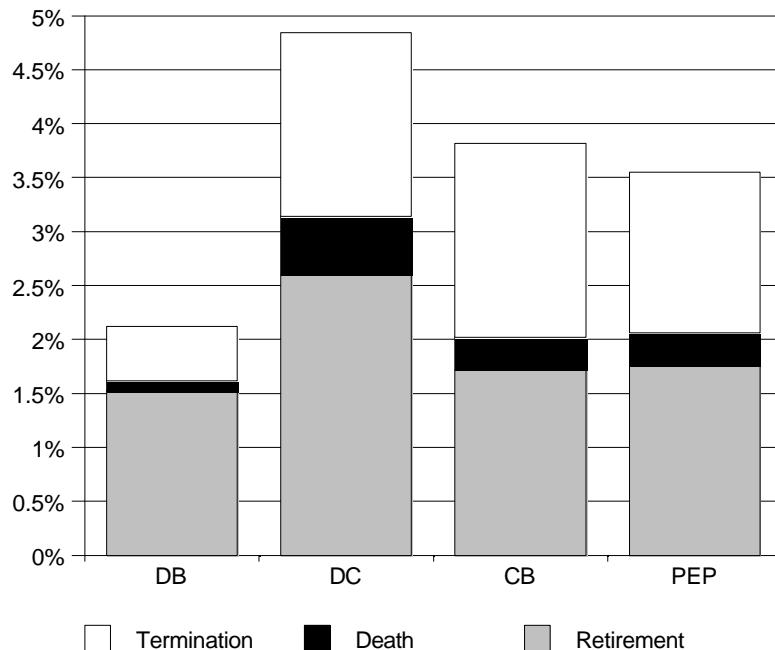
The cost implications of this are very dramatic as seen on Chart 5. The defined-contribution plan is more than twice as expensive as the traditional defined-benefit plan to provide the same level of benefits at retirement. The cash-balance and pension equity plans have cost levels in between that of the defined-benefit and defined-contribution plans. Cash-balance and pension equity plans provide larger termination benefits (comparable to the defined-contribution plan), but because of the financing efficiency of a defined-benefit approach, costs are lower than under the defined-contribution approach. The reduced cost is the result of the plan assets earning 9%, instead of 7%.

CHART 4
RAISE DC ACCRUAL RATE TO 5.5%



At this point, cost levels are very different. It may be appropriate to explore alternatives that offer different trade-offs between benefit delivery and cost. We can do this by adjusting aspects of the plan design, then evaluating the impact on benefit level and cost. To this point, the defined-contribution plan and the cash-balance plan reflected a flat accrual rate. It is often appropriate to use some kind of grading on the contribution rates. Contribution rates can be graded based on age, service, or both.

CHART 5
COST ADVANTAGE OF DB PLAN IS LARGE



To illustrate the impact this can have, let's consider an example. Instead of using the 5.5%, we could use a lower percentage ranging from 3.0% to 3.9% (we'll use 3.5% for this example). We could also use a higher percentage after age 50 (for example, 7.5%). We could also add an additional accrual component for pay over a breakpoint. For this example, let's use covered compensation as the breakpoint, and add 1% of pay over the breakpoint from age 40 to 50, and 2% after age 50.

Similarly, on the pension equity plan, we could change the accrual pattern to lower the value of the lump sum credits in the early years, and raise them in the later years. We could also add some integration on pay (Table 1). This will make the accrual pattern for the PEP plan much steeper as well.

TABLE 1
ALTERNATIVE PLAN DESIGN EXAMPLE—PEP

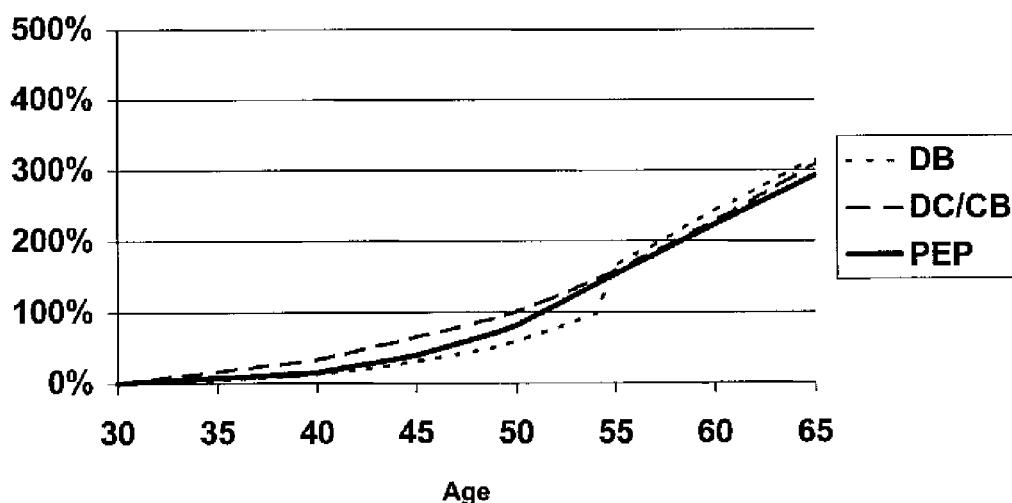
Age	% applied to FAP	% applied to excess pay
30–39	2	0
40–44	5	1
45–49	9	2
50 and over	14	4

You should note that these examples we are reviewing were constructed to illustrate the trade-off between benefit levels and cost. We have not reviewed these illustrations for compliance with nondiscrimination or accrual rules, which would be necessary in an actual design study. Incorporating these changes (Chart 6), results in tilting the accrual pattern. The portion of the lines representing the early years, both for the cash-balance and the pension equity plan, have come closer to the defined-benefit plan line. In the later years, the lines (and therefore the benefits) are comparable. You will also notice that the lines still do not show the cliff effect present at age 55 for the defined-benefit plan. Again, this cliff effect is the result of early retirement subsidies in the defined-benefit plan. Many times, when the sponsor is interested in an account balance or a lump sum plan approach, the elimination of this cliff effect is not an issue—in fact it may be one of the attractive features of changing to a new type of plan. The sponsor may want to get away from early retirement subsidies as a feature of the plan. Sometimes subsidies can encourage behavior that no longer fits with the sponsor's strategic needs.

The defined-contribution plan is still substantially a higher cost, but now the only difference between the defined-benefit plan and the cash-balance and pension equity plans is the higher termination benefits under the hybrid plans. These plan designs are more generous overall because benefits are more portable. The added cost may raise the appreciation level for employees in the first two-thirds of their

career. As Eric mentioned, employees often don't appreciate the defined-benefit plan until they get to the last ten years or so of their career. Alternatively, cost could be engineered to remain level if the sponsor were willing to trade a portion of the retirement benefit value for the added cost of more portable benefits.

CHART 6
ALTERNATIVE BETTER MATCHES ACCRUAL PATTERNS



By incorporating these plan changes, the relative cost of the four plans is closer. In analyzing these decisions, the traditional final average pay defined-benefit plan is the most efficient way to deliver a high retirement income to long service employees. As we have discussed, however, this is becoming a less important goal. As goals like portability, less desire to encourage early retirement, and others are carrying more weight, cash-balance and pension equity plans can fill an important need. They are effective for delivering retirement benefits that are comparable to a defined-contribution plan and yet have many of the cost-effective features of a traditional defined-benefit plan.

Eric mentioned that these newer designs are hot and plans are converting at a rapid pace. That is probably true for a limited segment of the retirement plan marketplace—large companies that have big staffs that spend time thinking about the latest and greatest benefits the world has to offer. For the broader market, excluding the very largest companies, but including mid-sized and many large companies, they are aware of these newer ideas and plan design alternatives but don't have time to think about changes or explore the details more fully. If the chief financial officer (CFO) is also the "benefits manager," he really doesn't have time to think through the theoretical tradeoffs between benefit adequacy and cost.

My observation is that, given the advantages that these hybrid plans have over the alternative of switching to a defined-contribution plan, including the dramatic cost advantage, I'm surprised that changes haven't been more prevalent with the "smaller large companies" and with mid-size companies.

There may be a number of reasons for this. Often, the goals that are initially set up aren't achievable. Part of the reason for this is a carryover from the design study being conducted in the same manner in that past studies have been done. In the past studies might focus on comparing among traditional defined-benefit designs. In that environment, it was perfectly reasonable to start with a focus on benefit adequacy and assume similarity of portfolio performance. Today, the competing goals of portability and high retirement income must be balanced while considering the cost and benefit implications of where plan financing control rests.

The wide range of considerations recognizes that there must be tradeoffs at the objective setting stage. I have seen companies go in with some objectives that do not fit together in a tight package. For instance: there can be no "losers"—meaning no one can end up worse off. The plan must be simpler to understand so that it will be more appreciated. Finally, the plan should be state of the art, and benefits should be more portable, but there should not be any increase in cost.

When you look at all these goals, the only way to have no losers, and have no increase in cost is to stick with the existing plan. If you are looking for anything else on top of that, then the cost will go up.

Another reason more plans have not switched is because there is a cost of changing to a new design. Even if the sponsor can accept that there will be winners and losers in the long run, the differences in the rate of earning benefits can be dramatic. This means there could be significant transition issues in going from a traditional final-average-pay defined-benefit plan to an account balance or lump-sum-type plan. Often, the costs of "grandfathering" to overcome these transition issues can be prohibitively expensive.

A common outcome of a sponsor reviewing its defined-benefit plan design is that the company realizes that they do value many of the attributes of a traditional defined-benefit plan a little more than they thought they did. We've seen a lot of interest in considering hybrid plans like these, but a reluctance to pull the trigger when it comes to making the decision to go with a newer type of plan. The added cost associated with the change or the amount of shifting of benefits (from the older longer service people to those with a short tenure with the company), that would be required for the plan to remain cost-neutral are the typical stumbling blocks. In many of these studies, the result is a reaffirmation that the defined-benefit plan is a

very effective method of delivery for retirement benefits, and is the appropriate design for the long term.

There are many factors that influence trends in retirement plan design. There are certain conditions that create an environment conducive to change—including changing demographics, the higher priority that employees put on the portability of benefits, and the changing social contract between employees and employers. The actual impetus for change is probably more likely to be supply driven.

Plan sponsors don't just suddenly decide to switch to a defined-contribution plan from the defined-benefit plan that has served them well for decades. Nor is it likely that they have gone through a thorough analysis of trade-offs. Sponsors are bombarded almost daily with salesmen promoting their hot new program. There are many institutions that like defined-contribution plans. The mutual funds love to manage the money. Insurance companies and banks also want a piece of that action. There are a multitude of places where people can hear about the advantages of defined-contribution plans over defined-benefit plans—everyone with a defined-contribution product to peddle is happy to explain them. There are not as many places to hear the advantages of defined-benefit plans or hybrid plans over defined-contribution plans except through retirement plan consultants.

Brand managers at consumer products companies will tell you that unless you have the ear of someone on an ongoing basis, you won't be able to build a strong level of awareness. There's more product to sell on the defined-contribution side, that is pushing sponsors toward defined-contribution plans than there is education, that is pulling them toward a defined-benefit-type design. There are other items that can influence changes. One factor is whether there's a perception that an idea is out of date (the perception of defined-benefit plans) or hot, new, and trendy (the perception of defined-contribution, cash-balance, and pension equity plans). Finally, the internal manager "championing" the change matters. If it's the benefits manager initiating the project, he or she will take a lot of heat if there are going to be many "losers" under the new program. This can be especially tricky for the benefits manager if those people are those nearing retirement who also just happen to be senior executives in the company.

On the other hand, if it's the CEO spearheading the change, there will certainly be the clout to gain widespread acceptance. The CEO can focus managers and employees on changes in the business environment that necessitate change in compensation and benefit programs. He or she can decide with conviction on a change to serve different needs in the work force. He or she can put the trade-offs involved into context, and either understand that there have to be winners and losers, or there has to be added cost to make a transition. At this decision-making

level, costs can be understood relative to potential morale and productivity enhancements, that might also result. It's important to manage the decision process to make sure that the proper buy-in objectives and priorities happen very early in the project. Understanding these priorities can also steer the study toward the most appropriate design alternative.

In choosing among the various defined-benefit design alternatives there is a place for both the traditional defined-benefit plan and newer, hybrid designs. If the goals are focused on high-income replacement for career employees, then the traditional defined-benefit plan is still a winner. If the goal is to signal a shift in company strategy, focus on a new priority like portability, or to show a move toward what's new and trendy, then cash-balance and pension equity plans are a good fit.

Defined-contribution plans offer the same advantages of cash-balance and pension equity plans in terms of being easy to understand, providing a portable benefit, and being an exciting, youth-oriented benefit. The aspect that is different with a defined-contribution plan is that it does not have the financing efficiency of a defined-benefit plan. In other words, there is the ability to bring professional investment management to bear to seek higher investment returns. This can either lower the long-term cost to the sponsor or enable the sponsor to provide a higher benefit level in terms of the annual accrual rate.

When we look at these kinds of comparisons, it raises the question as to why the defined-benefit and defined-contribution question is always, "Should we terminate our defined-benefit plan and move to a defined-contribution approach?" With all of the advantages in cost in defined-benefit plans, shouldn't there be more situations where the defined-benefit and defined-contribution question is, "Are there ways of providing more benefit, or the same benefit more cost efficiently using the defined-benefit approach instead of a defined-contribution approach?"

Let's consider key objectives and discuss how the various plans fit with these objectives. We could characterize goals in the form of key questions:

- Do you want the low-cost retirement income vehicle?
- Are you more concerned with a portable exciting youth appeal type plan?
- Do you want the portable plan where the employee has complete investment control?

The last question highlights that the difference between defined-contribution and cash-balance is really just a financing difference. There's not a design difference from a benefit delivery standpoint. The plans can be designed so the accrual patterns under the two approaches look very similar. The difference is whether the

employer is going to have investment control, or whether the employee is going to have investment control.

The other issue that might affect that decision is whether the sponsor is transitioning from a current program that includes a defined-benefit plan or starting with a clean slate. The defined-benefit approaches provide the most retirement income. If the sponsor has a current defined-benefit plan, and is focused on achieving the highest retirement income within cost constraints, then there is no reason for major design changes. When starting with a clean slate, there might be a reason to consider an alternative design like a pension equity plan. If the focus is more on the portability of the benefit, the real question is whether the sponsor wants the employee to have investment control. Because of the cost advantages of cash-balance plans over defined-contribution plans, common sense would suggest that the potential exists for these plans to become much more popular in situations where an account balance type plan makes sense.

There can be circumstances where terminating a defined-benefit plan makes sense, or where shifting the defined-benefit plan to an account balance plan is appropriate. At times where the plan sponsor's industry is changing, there may be new players in the industry who have a different type of work force and a different benefit approach. There might be consolidation in the industry where the company is trying to deal with bringing various programs together. Sometimes starting with something new and easy to understand is easier than trying to choose between existing defined-benefit programs. There could also be other changes in the way the industry operates that could cause dramatic shifts in the demographics of the entire work force for that industry. There could be a shift in the company's focus. This could be in response to industry change or any other reason. It could be that the CEO realizes that he or she wants to start moving the culture in a different direction, and views benefit programs as powerful tools to support the change. Finally, it could be that the sponsor is trying to fit the retirement program with the overall compensation structure, and there are other compensation program changes to coordinate with.

If there aren't any plans in place where some kind of transition approach needs to be implemented, or if there needs to be continuity from the current program, then there might be a different impetus to use various defined-benefit plans. There are certainly reasons why a company might still want a traditional defined-benefit plan. A new company that is formed because of a spin-off might still choose to use a traditional plan. They might be looking to match the competition. Many times, matching the competition means designing plans that are very similar because the company needs to be able to attract executives in the middle of or late in their career. There might be a desire to really focus the dollars available on providing

retirement income and not on providing portable benefits to people who aren't going to be with the company for the long term.

New types of defined-benefit plans can also be useful when goals are different. There may be a desire for a program to look exciting and new. Sometimes new is perceived as better simply because it's new and for no other reason. Companies that want to be leaders don't always want to match competition. They want to do something different that they can portray as better than competition. These companies may look for what's leading edge in everything they do—including retirement benefit design.

Cost is the important aspect in these approaches. A defined-benefit approach to an account balance or a lump sum type plan offers the sponsor more financing flexibility. The sponsor can control investments, enabling either lower cost or enhanced benefits.

There are situations in that changing to a hybrid plan is easier or harder than others. When switching from a traditional defined-benefit plan to a cash-balance plan, it's easier if the defined-benefit plan is not a final-average-pay plan. If the plan is a career-pay plan, the accrual pattern is already closer to a cash-balance type accrual pattern. If the plan is a dollar-per-month plan, or other fixed-dollar plan, the situation is similar. In these situations, the transition cost of switching from a defined-benefit plan to a cash-balance plan is a much lower hurdle.

If the current plan is a final pay plan, a pension equity plan might offer more flexibility regarding transition issues because it is easier with a pension equity plan to match the accrual pattern of final pay defined-benefit plan.

Shifting to a cash-balance or a pension equity plan instead of a defined-contribution plan could make economic sense in many situations. There is still going to be a challenge as long as there's such an imbalance in information in the market-place—there are so many promoters of defined-contribution plans. There's a big hurdle to overcome in terms of peoples' perceptions even though the underlying economics support these hybrid approaches.

Defined-benefit plans are one of the greatest financial vehicles ever invented. There are many financial gurus creating the crafty investment derivatives that serve short-term hedging and trading needs. None of these is as powerful and flexible a long-term financial vehicle as the defined-benefit plan.

When clients think they want to terminate a defined-benefit plan, it is often because of a lack of convincing support for those plans. A helpful tool would be a more

readily available road map laying out the process of changing to a newer design. When plan sponsors are thinking about change, the process of changing to a defined-contribution plan is well known. Many people have done it. It's important to lay out a better road map on how to make changes to these hybrid plans.

Another thing that may need to happen involves the general convention on who pays the cost of plans. This is an important issue and an important difference between defined-benefit and defined-contribution plans. A key reason defined-contribution plans are sometimes thought of as less costly than defined-benefit plans by employees is that many times when employers switch to a defined-contribution plan, the employee starts paying for at least part of the cost of the plan. If the employee pays for a plan, it's obviously going to be less costly to the employer than if the employer pays for it—that's common sense. I think we need to think about what that means for plan design. There's no conceptual reason for the difference in approach. Defined-benefit plans can be contributory as well. There is nothing preventing plans from being designed in exactly the same fashion, whether defined-benefit or defined-contribution plans. No true design barriers exist; only perception and conventional wisdom are holding progress back.

In addition, we need to more readily acknowledge the advantages that defined-benefit plans have. These advantages are tremendous. What we've seen is that clients stick with their defined-benefit plan when they understand the trade-offs. This takes a great deal of diligent effort to reinforce this understanding.

From the Floor: I don't think I heard you mention that one reason you may not want to switch to any kind of defined-contribution plan is when you look at the current defined-benefit plan you may want to look at funded status on a termination basis. There may be a significant shortfall that may have to be made up. That's not the thing you want to be faced with before you make the switch over to cash-balance or a pension equity plan.

I noticed, in one of your examples on the cash-balance, you had a variable rate formula where I think it went from 3% and then up to 5.5%. I'm not sure that would quite satisfy the accrual rules, and I don't know if you were thinking about that for this example.

Mr. Sloan: These example were constructed for simplicity and to illustrate relationships among plans. There was no attempt to consider many of the aspects that would be addressed in an actual study, like the accrual rules or testing for nondiscrimination.

From the Floor: What I'm not real clear on, because I haven't dealt with them very much, is the pension equity plans. I was wondering if either one of you could comment on how the accrual rules work with that type of plan.

Mr. Lofgren: The pension equity plan has a little bit of an advantage in compliance testing over cash-balance because, like any final-average plan, you don't have to take into account future salary increases in the testing. Consider a traditional final average plan that's actually very back loaded, but the accrual test is a level accrual pattern, say if it's 1.5% a year. With a similar type of mechanism, a pension equity plan, that has a more or less level accrual, will come out very front-loaded in the testing as soon as you take the salary increases out of account.

What you'll test is the accumulated deferred annuities. If you think about a percentage such as 4% at age 20, divided by a deferred-to-65 annuity factor, there's going to be a much bigger age 65 annuity accrual at age 25 than at age 65. It's a slam dunk.

From the Floor: What about the breakpoint between age bands? Aren't there accrual rule problems?

Mr. Lofgren: There are three accrual rules, and the problem with the 133 and a third rule in this testing is that it's one year to the next. The fractional rule and the 30-year rules are both cumulative rules. I think as a practical matter, both designs work better with the cumulative rules. There are some kinks in the pension equity accrual deferred annuity factors that I don't think are worth getting into, for that I bet I could find a violation of the four-thirds rule any time you wanted to try to make it comply. It gets a little tricky.

On the other hand, since PEPs are essentially the front loaded. The cumulative rules are always slam dunk.

Mr. Sloan: There is an added issue on the accrual rules on cash-balance plans that has always been out there, but is more visible recently. There can be an issue with accrual rates if the crediting rate is higher than the safe harbor rates that came out in IRS Notice 96-8. You would need to be aware of that as well in reviewing compliance with accrual rules.

Mr. Mark W. Campbell: You mentioned the difference in financing efficiency between defined-contribution and defined-benefit plans. Do you have any information or ideas on how much of that inefficiency can be overcome by stepping up the level of member education so that they take more aggressive positions with their investing?

Mr. Sloan: I think you're right that inefficiency can be improved through education. There is actually a wide disparity of how defined-contribution plans are invested in practice. Some companies have very conservative investments in their defined-contribution plans. Other companies have aggressive or at least balanced portfolios. I have seen companies where there is an average of 70% of assets invested in equities. However, as a general rule, there's a wide disparity between defined-benefit and defined-contribution plans. It doesn't apply to every single situation, and sponsors can, and do, affect behavior with education.

Mr. Lofgren: There's another point here that might be worth mentioning. There's an assumption that the reason that the documented returns are 2% or 3% less in defined-contribution plans than in defined-benefit plans, is because individual participants are too conservative as investors.

We have the life cycle accounts put together where you would be almost 100% in equities where you're young and you would work up to a 50%/50%. Then in your 50s, and when you're near retirement, you'd switch to more fixed account.

We've done some study at my company where we found out that if you had employees who invested exactly like you said, in aggregate, you'd be far less than 50% equities. You'd be much more than 50% fixed. Why? Because the big accounts are with older people. It turns out that even if everybody invested by the approach suggested in the personal financial education, you're still going to end up with a more conservative style.

Think of the defined-benefit pension fund, where all the liability is on the people at their earlier retirement age or higher: in effect they're investing heavily in equity on the liabilities behind the retirees as well, that is something that you just wouldn't advocate on the personal financial education if it's your own individual account and you don't have a spreading of risk. I think there's an element that's not simply bad investment choices by people, but there's a "nature of the vehicle" element.