

# **Possible Implications of Mandating Choice in Corporate Defined Benefit Plans**

Olivia S. Mitchell and Janemarie Mulvey

**PRC WP 2003-25**

**Pension Research Council Working Paper**

## **Pension Research Council**

The Wharton School, University of Pennsylvania  
3641 Locust Walk, 307 CPC  
Philadelphia PA 19104-6218  
T: 215/898-7620 • F: 215/898-0310  
Email: [prc@wharton.upenn.edu](mailto:prc@wharton.upenn.edu)  
<http://prc.wharton.upenn.edu/prc/prc.html>

Pension Research Council Working Papers are intended to make research findings available to other researchers in preliminary form, to encourage discussion and suggestions for revision before final publication.

Support for this research was provided by the Watson Wyatt Worldwide and the Pension Research Council of the Wharton School at the University of Pennsylvania. Research assistance was provided by Michael Slover and Rachelle Green. We are grateful for comments provided by Kyle Brown, Robert Clark, Sylvester Schieber, and David Speier. Opinions and errors are solely those of the authors and not of the institutions with whom the authors are affiliated. © 2003 Olivia S. Mitchell and Janemarie Mulvey. All Rights Reserved.

## **Possible Implications of Mandating Choice in Corporate Defined Benefit Plans**

Olivia S. Mitchell and Janemarie Mulvey

### Abstract

Defined benefit (DB) plans have been applauded as the mainstay of the US pension system for many years, but increasingly such plans have been replaced with defined contribution (DC) pensions. One exception to the downward DB spiral has been the development of “hybrid” plans. Technically, these are pensions where the benefit accrual is communicated as a lump sum and not in the form of an annuity as is done with traditional pensions. In the transition to this new plan structure, some employees at some firms have contended that they would have accumulated retirement benefits more quickly under the old DB plan – assuming they remained employed – than under the new hybrid design. In response, some legislators have attempted to force companies transitioning from a traditional DB to a hybrid plan to offer all workers the open-ended choice of remaining in the old DB plan, versus switching to the new hybrid plan. In this paper we explore some of the possible consequences of mandating plan choice in this fashion. We conclude that regulators seeking to mandate pension choice should take into account the potential undesirable outcomes of such a law.

## **Possible Implications of Mandating Choice in Corporate Defined Benefit Plans**

Olivia S. Mitchell and Janemarie Mulvey

Company-sponsored defined benefit (DB) plans have long been seen as the bulwark of the US pension system, but recent years have seen a steady erosion in the number of DB plans in America (McGill et al., forthcoming). Many of these plans have been replaced with defined contribution (DC) plans. One interesting exception to the downward DB spiral in the last two decades has been the invention of so-called “hybrid” defined benefit pensions. In essence, these are pensions where the benefit accrual is communicated as a lump sum and not in the form of an annuity as is done with traditional pensions. Many of these new hybrids were adopted by companies that previously had offered traditional defined benefit pensions, which described benefit provisions in terms of specific benefit formulas. In the transition process to the new hybrid plans, a subset of employees has claimed that they would have accumulated retirement benefits under the old plan more quickly, assuming they remained on the job, than under the new hybrid design. Though many companies effected a smooth transition, legal challenges were filed in some cases and still wend their way through the judicial system. Some complainants also approached legislators, seeking to impose regulations on how companies would be permitted to transition from a traditional DB to a hybrid plan. The thrust of such restrictions would be to require transitioning firms to offer employees a choice of remaining in the old DB plan, or switching to the new hybrid plan. In this paper, we offer some thoughts regarding the potential impact of mandating plan choice in this way.

## **Background and Recent Developments on Hybrid Plans**

Two types of hybrids have come on the scene in the US context, namely cash balance (CB) and pension equity plans (PEP). In a cash balance plan, the plan sponsor describes to employees what the annual contributions will be (usually a percent of salary), indicates the interest rate credited to annual contributions and prior accruals, and reports the lump-sum value of the worker's accumulation as it grows over time. In a pension equity plan, by contrast, there are no interest credits. Instead, the benefit is defined as an accrual rate times years of service times final average pay. What makes both of these plans "defined benefit," in the US context, is the fact that they promise a specified annual accrual, which means that their employer must guarantee benefits as they accumulate. Further, in the event of company bankruptcy, the federal Pension Benefit Guaranty Corporation (PBGC) protects the security of retirement benefits under these plans. In contrast, DC plans are not protected by such insurance, meaning that employee benefit accumulations vary with capital market performance.

Hybrid plans came to public attention in 1984 with the development of the Bank of America cash balance (CB) plan. This new plan format was warmly welcomed by DB supporters who believed that the innovative design was a means to rescue some of the essential features of the declining traditional DB plan. In particular, supporters applauded the fact that plan sponsors backed accumulated benefits in the hybrids, and they also believed it was important to provide government insurance of plan accumulations in the event of company bankruptcy. Hybrid pensions also appealed to many workers, who often felt they better understood plan accruals when presented as an accumulation value, rather than as far-in-the-future annuity payouts (McGill et al., forthcoming).

Another reason that many have favored hybrid plans is that traditional DB pensions have imposed large benefit cuts on employees who left the firm prior to retirement age. This is because most traditional DB formulas usually link retirement payments to final pay at the company, so leaving the job before retirement can have a very negative effect on eventual benefits. Turner (1993), for instance, found that two-thirds of all DB plans tied benefits to terminal earnings rather than career formulas, a formulaic approach that imposed large pension losses on workers who left their employers prior to the retirement age specified by the plan. Indeed, Turner estimated that final pay plans cut retirement benefits for early leavers by almost one-quarter. Obviously this was a problematic human resource policy in times when labor mobility was becoming increasingly important both to workers and firms (Mitchell et al., 2003).

It is clear that hybrid plans can address the issue of portability rather well. Workers who terminate prior to normal retirement are eligible to receive an accrued benefit in the form of a lump sum. They then can invest the balance and earn a return on the investment up to, and indeed after, retirement. This contrasts with traditional DB plans, where workers who leave their employer before early retirement can claim their vested benefit only if they worked for their employer for at least five years. Yet they do not receive the promised benefit immediately on termination; rather, they must typically wait until normal retirement age, and therefore the amount they receive is fixed between the termination date and retirement. In other words, the employee who terminates with vested benefits from a traditional DB plan prior to early or normal retirement accrues no additional market returns, nor is his benefit promise protected from inflation, during the intervening years to normal retirement. In addition, the benefit structure of cash balance (CB) plans also favors workers who terminate before normal retirement. The cash balance accrual rate tends to be quite uniform across the entire work life, which differs from the

well-known “back loaded” formulas typical of traditional DB plans which target final average pay. In general, workers who anticipate changing jobs would benefit most from the portability and a more uniform benefit structure of the hybrid plan.

Another reason that employers have held hybrid plans in high esteem was that the plans encouraged older workers to remain employed beyond the early retirement age, a useful advantage as the labor force has grown tighter over this decade (Nyce and Schieber, 2002; Bernstein, 2003). Traditional DB plans generally encourage early retirement, by offering early retirement subsidies and delayed retirement penalties (Luzadis and Mitchell, 1991). As a result, DB plan sponsors seeking to keep their older workers on the job found that their traditional plans did not serve business objectives. By contrast, hybrid plans eliminate early retirement incentives and do not have a “spike” in accrual rates shortly before normal retirement age. Thus workers who leave early are not penalized as was the case of most DB plans, which provided larger accruals for longer tenured employees close to retirement. As a consequence, younger and shorter tenured workers benefit the most from this feature of the hybrid plans.

Portability is also an important feature of a hybrid plan. The impact of portability on benefits under a traditional DB and a hybrid may be illustrated using benefit formulas typical under each plan design. Portability and smoother accrual patterns are increasingly relevant to today’s workforce. Over the past 20 years, the median tenure of workers has been declining, particularly for the older age groups. Figure 1 shows that median tenure for workers age 45- 54 has fallen from 9.5 years in 1983, to 7.6 years in 2002, for a 20% decline drop over 20 years (BLS, 2002a). One factor driving these trends is the changing industrial distribution of the workforce. Twenty years ago, a large share of the workforce was in manufacturing, which was an industry characterized by long tenured employees who often stayed with one employer over

their entire career. Today, most workers are employed in the service sector, which historically has been characterized by shorter tenures and increased job mobility. Indeed many cash balance conversions appear to be largely driven by labor market conditions. Coronado and Copeland (2003) report that industries with younger, more mobile workers and tighter labor markets were most likely to experience hybrid conversions.

*Figure 1 here*

To show how DB and cash balance pension wealth would be influenced by job changing, we posit two hypothetical workers, one of whom holds three jobs over his career, and another who remains with an employer for his entire career. Table 1 illustrates the key characteristics of typical traditional DB and typical CB plans used for this example. The DB normal retirement benefit, payable as an annuity from age 65, is worth 1.1 percent of his final five-year average salary, times his years of service at termination (retirement). If the worker were to retire early, the benefit would be reduced by 2 percent per year between ages 62 and 65, 4 percent from 60 to 62, and 5 percent for retirement from age 55 to 60. Since this formula embodies an early retirement reduction rate that is smaller than the actuarially fair rate (which would be around 6-8 percent per year), the DB plan embodies an early retirement subsidy. By contrast, the cash balance plan has a much smoother accrual rate, with pay credits of 4 percent per year during the worker's first decade of service, 5 percent for the next ten years, and 5.75 percent for service of 20 or more years. There are no early retirement reductions, and contributions are credited with a 7 percent interest credit per year.

*Table 1 here*

Table 2 illustrates how these two workers would fare under a traditional DB and a hybrid plan. If a young worker knew that he would remain with a single employer his entire career and

retire at age 65, his anticipated accumulation in the DB plan would be one-third higher than the cash balance plan. But certainty regarding mobility prospects is unlikely since the average American holds several jobs over his career (BLS, 2002b). In fact, using data from personnel files from 65 large companies we found that only 7 percent of workers were likely to stay with one employer for their entire career. Thus, when we compute the expected value of the two plans based on the likelihood of a worker actually staying to full retirement and receiving the full defined benefit plan the expected value of the benefit from the hybrid plan is 11 percent higher than the expected value of the defined benefit plan (see Table 2). Beyond the expected value of the benefit, for those employees who changed jobs three times over their work life, their pension wealth from the hybrid plan would be nearly 18 percent higher than what they would have received from three different DB plans.

*Table 2 here*

The above computations focus on the pension outcomes of workers under hybrid conversions. There are also implications to the plan sponsor when they convert to a hybrid pension plan. Some critics have asserted that employers undergo the conversions simply to curtail pension expenses. If this were the only goal or even the primary goal motivating plan changes, the most effective way to reduce pension costs is to freeze the plan or to cut back the existing formula or early retirement subsidies. Since these plans are voluntarily sponsored by employers, the law allows these options. The evidence, however, is far from supportive that cost reduction is the major motivation for the shift to hybrid plans.

Most recently, Coronado and Copeland (2003) found that cash balance conversions have not reduced overall benefit generosity at the firm level, although some redistribution may be occurring among individual employees. This is partly because many conversions have included

company enhancements to DC plans as well: for example, Brown et al. (2000) found that pension costs fell by only 1 percent, on average, when firms shifted to cash balance plans. That study also reported that 37 percent of the plan sponsors adopted changes that actually *increased* pension expenditures. In some cases, longer-tenured workers might tend to lose pension wealth under a strict conversion, inasmuch as the new hybrid plan lacks an early retirement subsidy. One way companies have avoided this result is to grandfather many workers near retirement age. Thus one analysis indicated that 88 percent of the cash balance conversions gave some form of transition benefits (Clark and Schieber, forthcoming).

There are, of course, some good reasons that employers implement hybrid plans, reasons which often fail to receive due attention. From a cost perspective, cash balance plans tend to improve the predictability of the plan sponsor's pension costs, largely because the rate of return credited under cash balance (CB) plans (often called the interest credit) is tied to market rates. Under hybrid plans the financial market risks are shared by the employer and employee. DB plans, by contrast, promise a specific benefit formula with pay levels and service years growing independently of plan investment returns. As a result, the traditional DB plan places substantial investment risk on sponsors, risks that have become painfully clear during the recent market volatility. This is clear from an examination of pension plan funding, which can be summarized by the projected benefit security ratio (see Table 3). This is the ratio of a plan's assets at current market value to its projected benefit obligation. Comparing the projected security benefit ratio of hybrid plans to traditional DB plans over the past two years shows two interesting facts. First, the ratio is higher for hybrid plans as compared to traditional DB plans. Second, the decline in this ratio between 2001 and 2002 is smaller for hybrids.

*Table 3 here*

Another important reason that hybrid plans appeal to plan sponsors is that they are easier to communicate to employees than are traditional DB pensions (Clark et al., 2001). Evidence suggests that employees tend to value receiving account balance summaries and understand them better than a benefit formula which pays an annuity commencing at normal retirement.

### **Regulatory and Legal Responses and Challenges**

As testament to their popularity, hybrid plans are quite widespread today in the US context. In 2000, there were over 1,200 hybrid plans comprising more than 20 percent of corporate pension plan participants (PBGC, 2003). Virtually all of these evolved from what had been more traditional DB plans, and most of these transitions took place in the last five years. Yet, as noted earlier, these changes are not without controversy and there have been a number of regulatory/legal responses and challenges to these conversions.

In considering these controversies, it should be recalled that US companies elect voluntarily to offer pension plans. At the same time, several federal regulations and administrative rulings have nevertheless shaped their form and structure, as well as their costs, over time. The philosophy driving many of these regulations has derived from the fact that pension contributions are tax-qualified as long as the funds are accumulated and paid in a manner that accrues to a broad range of workers, rather than being limited to a subset of highly paid employees. Perhaps the most far-reaching early US regulation was the Employee Retirement Income Security Act (ERISA) of 1974, which sought to change the fact that employees could lose their pension accruals if they left their jobs before reaching retirement age (Sass, 1997). It did so by granting workers a legal “vested” right to their accrued pensions based on past service, and further by requiring the plans to hold assets sufficient to pay so-called

termination benefits. Subsequent legislation again adapted and changed the pension environment many times, resulting in additional complexities in plan administration and reporting.

The regulatory controversy regarding hybrid plans centers around two key issues: valuing the lump sum distributions and age discrimination. The main problem in valuing the lump sum is that “federal statutes governing these plans describe the accrued benefit in very different terms than the plans themselves use” (Purcell, 2003). The accrued benefit under a hybrid plan is essentially an account balance, whereas the accrued benefit under a traditional defined benefit is described as an annuity at normal retirement age (26 USC 411(a)(7)). According to the IRS, the employer must project the account balance of a hybrid plan forward to the plan’s normal retirement age using the interest rate or index of rates set forth in plan documents. This amount must then be discounted to the present using the interest rate paid by 30 year U.S. Treasury bonds in the month prior to distribution. If the discount rate differs from the rate of return credited toward the account, the lump sum amount could be over or understated. This regulation has resulted in what has been termed the “whip-saw effect” where benefits are projected at the interest crediting rate and discounted back at the mandatory lump-sum calculation rate, resulting in a lump sum larger than the account balance in some cases. There is also a whipsaw issue with regard to decrements used in mortality calculations along with the plan rate. Most recently, the *Burger vs. Xerox* ruling was appealed and the court of appeals upheld the use of the whipsaw calculation for determining participant’s lump sum distributions in the Xerox cash balance case.

Age discrimination issues arise because ERISA, IRS, and the Age Discrimination and Employment Act (ADEA) all prohibit reductions in benefit accrual rates that result directly from an employee’s advancing age (29 USC 1054(b), 26 USC 411(b)(1)(H)(i), and 29 USC 623 (i)). Hybrid plans may be perceived as age discriminatory because interest credits compound over

fewer years for older workers resulting in a lower benefit at retirement, as compared to younger workers with similar starting balances. Interestingly, the same issues have not been raised about defined contributions although their benefit accrual patterns are virtually identical to those in hybrid plans. A number of court cases have been filed related to age discrimination, and until recently, most have found that cash balance plans do not discriminate based on age (e.g. *Onan v. Eaton*, *Engrers v. AT&T*, and *Campbell v. Bank of Boston*). Very recently, however, a ruling in the *Cooper v. IBM* case found in favor of the plaintiff that IBM's cash balance plan discriminated on account of age. The court found that the age 65 annuity benefit could not decrease on account of age.

Such legal challenges have, in turn, prompted legislators to leap into the fray with the goal of mandating plan choice. According to Congressman Bernard Sanders (Ind-VT): "...there is serious interest in our legislation that give(s) workers a choice to remain in the pension plans they were promised, instead of being forced into a cash balance plan. It seems to me that if companies make a promise to workers regarding the kind of pensions they will receive, companies should have to live up to that agreement" (Sanders, 2001). In other words, the argument is that with choice, there won't be any question of age discrimination.

The irony is that choice has, in fact, been offered under the various hybrid plan conversions over the past five years (Demby, 2003). There have been a number of cases where employers offered older employees a choice between the old DB plan and the new cash balance plan. Other employers have been even more generous and extending choice to all current employees at the time of the conversion allowing employees to retain the "greater of" choice option right up to retirement. Eastman Kodak began the trend in 2000 and has been followed by Fed Ex and others. In the process, some firms have also altered their prior plans. For example,

when FedEx gave the 137,000 employees in its old DB plan an option to stay in the old plan or move to CB; the company amended the old plan to cap service credits at 25 years.

### **Mandating Choice: Cost Consequences and Potential Outcomes**

While choice may appear to some to be a panacea for the pension problem, it can also have consequences of its own. In this section we address three questions. First, what might be the cost impact of mandating that firms transitioning to hybrid plans must also maintain their conventional DB plans? Second, if pension costs did rise due to mandated choice, what might be the possible results and reactions? Third, how does mandating choice fit in an environment of voluntarily sponsored employee benefits and its impact on other forms of compensation?

While there are many different types of DB and hybrid plans that could be examined, to simplify the analysis, we rely on the DB plan and cash balance plan structures described in Table 1, most representative of such plans. Our simulation begins by first evaluating the projected unit cost of a typical DB and a typical CB plan given four different workforces. Personnel files from four companies whose employment populations varied by average age, salary, and tenure were used to conduct these simulations (see the Appendix for a more detailed description of the methodology).

### **Effect of Choice on Employer Costs**

Before examining the cost of mandating choice, it is instructive first to estimate the costs of a pure conversion without any choice mandates. In the absence of any transitional benefits or enhancements to 401(k) plans, a pure cash balance conversion would likely lower pension costs by nearly 12 percent, relative to the typical DB plan. But these figures are misleading and overestimate the potential reduction in costs, because they do not take account of the fact that most plan sponsors implement transitional benefits by grandfathering workers close to

retirement. If these transitional benefits are taken into account, much of the expected decline in pension expense is mitigated. For example, if employees age 50+ with 10 years of tenure are grandfathered into the traditional DB plan, pension costs fall only 4.8 percent as compared to costs under the traditional DB plan. Additionally, if grandfathering of benefits were expanded to middle age workers ages 40 and over with at least 10 years of tenure, pension costs under the conversion would only decline 2.9 percent below the cost of the traditional defined benefit plan.

Even after accounting for grandfathering of benefits, these estimates may still overestimate the potential cost differential for firms that also enhance their 401(k) plans as part of the conversion. In an earlier analysis, 30 percent of employers increased their 401(k) contribution by an average of 2.2 percent of payroll (Brown et al., 2000). Since we are trying to estimate the “typical” or average conversion, we compute a weighted average “effective contribution” rate, including both those who increased their contributions and those who did not, under a conversion. Using this approach, we assume 401(k) employer contributions increased 0.7 percent of payroll under conversions. The bottom half of Table 4 shows the estimated change in costs when 401(k) enhancements are taken into account. When expansion of 401(k) plans are accounted for during a conversion, pension costs only decline by 1.6 percent compared to the traditional defined benefit plan. This estimate is consistent with earlier research by Brown et al (2000), who found that pension costs declined only 1.4 percent under hybrid conversions when 401(k) enhancements were included. In fact, pension costs actually increased if 401(k) enhancements were coupled with grandfathering of benefits under the old DB plan. If plan sponsors commit to expand their 401(k) plan during a conversion, they generally offer these expanded benefits to all workers even those who were grandfathered under the old DB plan. This is largely due to nondiscrimination rules, which require plan sponsors to balance their

pension plans so as to distribute benefits among high- and low-wage workers. In this case, costs might increase anywhere between 8.5 and 10.4 percent, depending on the nature of the grandfathering provisions.

*Table 4 here*

Going beyond the cost of a pure conversion, if companies were required to allow workers to choose between the two plans, the design of such a mandate and the employees' response could likely affect the ultimate costs. Choice would most likely need to be offered along with a communications program to advise workers on how their pension benefits would differ under a hybrid conversion versus their traditional defined benefit plan.<sup>1</sup>

In order to identify who would choose the new hybrid versus the traditional defined benefit plan, we relied on estimates of choice probabilities derived from an analysis by Nyce (2003) who obtained company data showing which workers chose the hybrid plan when offered a choice. These workers were also provided access to financial planning workshops and a financial modeling tool. These workshops and tools enabled workers to compare projections of their future retirement benefits under various scenarios. Employees could alter their assumptions – such as the age that they plan to retire or leave the company, the percentage increase in their annual pay and projected interest rate – and thus estimate their expected benefits between the two pension plan formulas. Nyce (2003) found younger workers who used the financial modeling tool were more likely to choose the cash balance plan than those who did not use the tool. In general, older and longer tenured workers are more likely to choose the traditional DB plan, while shorter-tenured workers of all ages are more likely to choose the cash balance plan.

Using these estimates, employer pension costs were estimated under two choice scenarios. The last column in Table 4 shows what the cost of choice would be over and above the

cost of a pure conversion. The first choice scenario limits choice to workers 40+ with ten years of tenure. Under this scenario, direct pension costs are predicted to increase 5.9 percent compared to the cost of a cash balance conversion without choice. The second choice scenario expands choice to workers of all ages currently employed with the firm. Under Scenario 2, when all workers are offered choice, pension costs rise 12.9 percent above the cost of a cash balance conversion without choice. (The cost differentials are not very different with and without 401(k) enhancements because these enhancements are already taken into account in the initial cash balance costs from which we are calculating the percent change.)

In addition to the costs discussed above, there is another cost issue that must be taken into account, which can be quite important for plan sponsors. In particular, the administrative burden of maintaining an old DB plan for a dwindling number of workers could become quite large for a long period of time. If a firm grandfatheres an old plan for a limited cohort of older employees the cost burden will decline over time and end only after all the older workers retire. By contrast, an ongoing and open-ended mandated choice option means that both the old and the new pension plans could co-exist for many years – for instance, for up to 45 years if younger workers elected to remain with the firm throughout their careers.

It is important to recognize that the administrative burden of keeping around legacy DB plans for long periods could be large. Even though declining numbers of workers will be eligible for the older DB plan over time, employers must still administer, value, and fund it, while complying with a myriad of regulatory requirements. These costs fall on top of what already is an administratively burdensome system. Administrative costs in DB plans have nearly doubled over the past 20 years (Hustead, 1998; Mitchell, 1998). These costs would be spread over a dwindling number of workers. For example, in our analysis, 59 percent of the workforce was age

40 or older, and hence might possibly elect to remain in the legacy DB plan. Over time, the share of the workforce in the legacy plan would drop to 32 percent, in five years, and to below 15 percent, in 10 years.

### **Mandating Choice in Environment of Voluntary Benefits and Implications for Compensation of Workers**

Employer-sponsored pensions are a voluntarily-provided benefit in the US: employers have adopted these plans to provide tax-qualified compensation to valuable employees, to help in selection and retention, and to encourage continued work and orderly retirement (Gustman and Mitchell, 1992). They will continue to provide these plans as long as they meet employer and workforce needs. Once an employer offers a pension a variety of rules specified in ERISA must be observed. These include rules on modifying the plans. The issue of mandating choice has arisen within the context of converting a traditional pension to a hybrid form. No one yet has raised the issue of choice in the broader context of whether or not the plan sponsor would be able to simply terminate or suspend the existing plan's operations.

Under the current rules, employers can freeze benefit accruals in existing plans or can completely terminate the plans. Indeed, there have been many more plans that have been terminated or frozen over the past decade than have been converted to a hybrid plan form. The PBGC reports that in 1992 it insured 71,589 private defined benefit plans (PBGC, 2002). By 2002, this number had fallen to 30,680. This decline of 41,000 plans far exceeds the 1,200 plans that had been converted to a hybrid form by the end of 2002. In some cases, and maybe in most of them, where private defined benefit plans have been terminated or frozen, the plan sponsor has offered workers a defined contribution plan to replace the benefits provided in the prior plan.

Presumably, if employers are required to offer workers the choice of either entering a hybrid plan or staying with the old plan if the sponsor is considering a plan change, the employers would still be able to freeze their old plan or terminate it and simply offer a defined contribution plan in its place. If this the case, many employers considering plan modifications in the future will simply abandon the defined benefit system altogether rather than be required to maintain indefinitely plan formulas that no longer suit their workforces or benefits they can no longer afford. For example, if an employer wanted to offer employees a more portable retirement benefit through a cash balance formula that provides annual credits of 5 percent of pay, mandatory choice might lead the employer to instead freeze its defined benefit plan and adopt a 401(k) plan that provides contributions of 5 percent of pay. Under the 401(k) plan, employees would bear the entire risk of stock market declines. Annuity benefits, subsidized survivor benefits, disability benefits, and other features would no longer be available to employees because, unlike a defined benefit plan, a 401(k) plan cannot pay these benefits. Although the employer would prefer to provide a retirement benefit that is not subject to market risk for the employee and that has annuity and other beneficial features, the employer would likely switch to a 401(k) formula to avoid maintaining a traditional defined benefit formula indefinitely.

It is unclear whether mandatory choice would be required for every change to a defined benefit plan or merely for hybrid plan conversions. If required for every change, this would eliminate the flexibility employers currently have and will provide an incentive to abandon the defined benefit system. If mandatory choice is more limited and required only in the context of a cash balance conversion, employees potentially could be subject to the worst of both worlds. An employer could eliminate the features of a traditional plan that certain employees most value

without providing the beneficial features found in cash balance plans. For example, if choice is limited only to hybrid plans conversions, but not other plan changes, an employer could eliminate prospectively early retirement subsidies in a plan without providing choice, but the employer could not at the same time provide the more portable and more understandable cash balance benefit without offering employees a choice to keep early retirement subsidies.

The other problem with mandating choice in a voluntary environment is the fact that some workers will choose incorrectly. Figure 2 shows what percent of workers would choose the cash balance plan given that they attended a financial planning workshop or used a financial modeling tool. Not everyone, however, will correctly predict their tenure with the organization. Some will leave when they did not expect to, and others may stay longer than they had anticipated. The solid line in Figure 2 shows the probability of a worker leaving before they are immediately eligible for an unreduced defined benefit pension plan. Given the expected margin of error represented by the gap between these two lines, employee education of the sort discussed above would be essential to protect firms against the threat of employee litigation down the line and would provide a legal defense against those workers who may have chosen incorrectly. Of course, plan sponsors would need to keep good records of their historical communications material, which would be another administrative burden.

*Figure 2 here*

Even in some case where employers might be willing to move ahead with a hybrid plan conversion having to offer to all workers at the point of conversion the choice which plan they want to participate in, it is useful to remember that mandating choice is still not a “free lunch”. Mandating choice will likely boost pension and administrative expenses, and plan sponsors may seek to trim compensation in other areas so as to align total compensation with employee

productivity (Mitchell and Mikalauskas, 1988). Consequently, in competitive markets, even in this situation where choice is given, the cost of choice would not be borne by employers, but rather it will ultimately be borne by workers. Indeed, some prior research has reported evidence of tradeoffs between higher value pensions and lower cash wages (Montgomery et al., 1992; Mitchell, 2000). Consequently, mandating choice that raised benefit costs could likely result in reduced compensation. It is therefore ironic that mandated choice could make workers worse off rather than better off.

To realign compensation with worker productivity, employers may have to resort to one or a combination of the following: increasing employee contributions, reducing employer costs of other benefits, reducing growth rates in wages, or curtailing wage levels. It is also possible that some sponsoring firms would terminate their defined benefit/cash balance plans altogether. Since terminating a defined benefit plan and/or establishing or enriching a company DC plan does not expose firms to the legal challenges of hybrid conversions, the mandating of choice might have the unintended consequence of leading to more DB terminations.

## **Conclusions**

Traditional DB pensions were designed, in part, to discourage labor mobility up to a certain age, and then to strongly encourage an orderly retirement. This pattern may have made eminent good sense during earlier periods of labor market surplus. By contrast, many employers today prefer hybrid plans because they smooth compensation differentials by age and soften the incentives for early retirement. As a consequence of the new plan elements, hybrid plans are in fact *less* age discriminatory than many traditional DB plans. Evidently they are useful designs for many modern plan sponsors, as they encourage continued work and delayed retirement at older ages.

Nevertheless, recent court decisions are undermining company efforts to adopt cash balance plans, and legislators now threaten to further require that firms with DB plans must provide employees a choice between the old and new plans *in perpetuity*. Mandating choice would fundamentally change the voluntary nature of the defined benefit system. As a result of such mandates, there may be unintended and perhaps undesirable consequences. Forcing companies to provide two plans, in the face of additional pension and administrative costs from mandating choice, could prompt widespread plan termination which legally they would be able to do. But many believe that DB plan terminations could make existing employees worse off. In sum, regulators seeking to mandate pension choice should take into account the potential undesirable outcomes of their proposals.

## References

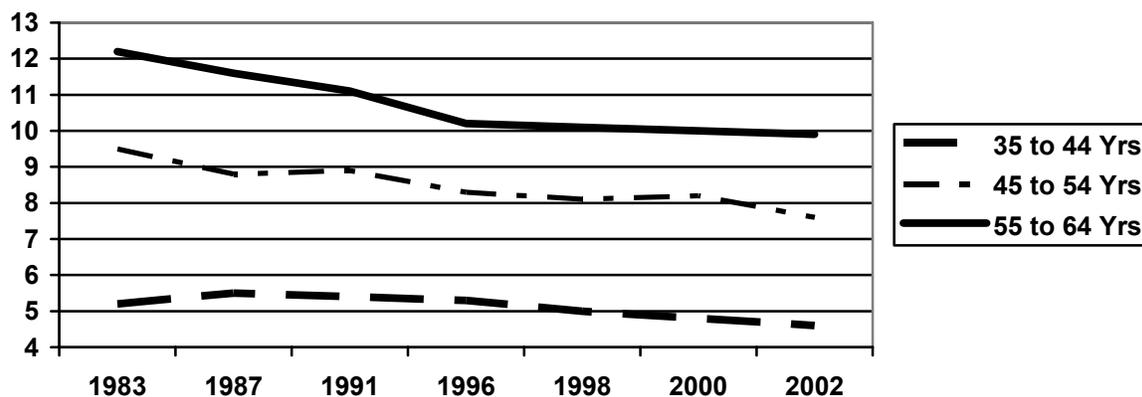
- Bernstein, Susan E. 2003. "Cash Balance Plans: Cloud of Uncertainty Continues." *Compensation and Benefits Review*. May/June:51-61.
- Brown, David T., Philip H. Dybvig, and William J. Marshall. 2000. "The Cost and Duration of Cash Balance Pension Plans." Working Paper, University of Florida. March.
- Brown, Kyle, Gordon P. Goodfellow, Tomeka Hill, Richard R. Joss, Richard Luss, Lex Miller and Sylvester J. Schieber. 2000. "The Unfolding of a Predictable Surprise: A Comprehensive Analysis of the Shift from Traditional Pensions to Hybrid Plans." A Watson Wyatt Worldwide Report. Washington, D.C.: Watson Wyatt Worldwide.
- Bureau of Labor Statistics. 2002a. "Employee Tenure in 2002." Press Release, September 19, 2002. U.S. Department of Labor Washington, D.C.
- Bureau of Labor Statistics. 2002b. "Number of Jobs Held, Labor Market Activity, and Earnings Growth Among Younger Baby Boomers: Results from More Than Two Decades of a Longitudinal Survey Summary." Press Release, August 27, 2002. U.S. Department of Labor, Washington, D.C.
- Clark, Robert L., John J. Haley and Sylvester J. Schieber. 2001. "Adopting Hybrid Pension Plans: Financial and Communications Issues." *Benefits Quarterly*, First Quarter.
- Clark, Robert L. and Sylvester J. Schieber. Forthcoming. "An Empirical Analysis of the Transition to Hybrid Pension Plans in the US." In *Public Policies and Private Pensions*, eds. William Gale, John Shoven, and Mark Warshawsky. Washington, D.C.: The Brookings Institution.

- Clark, Robert L and Sylvester J. Schieber. 2001. "The Emergence of Hybrid Pensions and their Implications for Retirement Income Security in the 21<sup>st</sup> Century." Paper presented at a Society of Actuaries Conference, May.
- Coronado, Julia Lynn and Phillip C. Copeland. 2003. "Cash Balance Pension Plan Conversions and the New Economy." Federal Reserve Board of Governors, October.
- Demby, Elaine R. 2003. "Cash Balance Makes a Comeback." In *Workforce Magazine*, May 28: 40-43. [www.workforce.com/section/02/feature/23/44/56](http://www.workforce.com/section/02/feature/23/44/56).
- Gustman, Alan and Olivia S. Mitchell. 1992. "Pensions and the US Labor Market." In *Pensions and The Economy*, eds Zvi Bodie and Alicia Munnell. Philadelphia, PA: Univ. of Pennsylvania Press: 39-87.
- Hustead, Edwin. 1998. "Trends in Retirement Income Plan Administrative Expenses." In *Living with Defined Contribution Plans: Remaking Responsibility for Retirement*, eds. Olivia S. Mitchell and Sylvester Schieber. Philadelphia, PA: University of Pennsylvania Press: 166-177.
- Lachance, Marie-Eve, Olivia S. Mitchell, and Kent Smetters. 2003. "Guaranteeing Defined Contribution Pensions: The Option to Buy Back a Defined Benefit Promise." *Journal of Risk and Insurance*. 70(1): 1-16.
- Luzadis, Rebecca and Olivia S. Mitchell. 1991. "Explaining Pension Dynamics." *Journal of Human Resources* 26 Fall: 679-703.
- McGill, Dan M., Kyle N. Brown, John J. Haley and Sylvester J. Schieber. Forthcoming. *Fundamentals of Private Pensions*, Eighth Edition. Oxford: Oxford University Press.

- Mitchell, Olivia S. 1998. "Administrative Costs of Public and Private Pension Plans." In *Privatizing Social Security*, ed. Martin Feldstein. Chicago: University of Chicago Press: 403-456.
- Mitchell, Olivia S. 2000. "Developments in Pensions." *Handbook of Insurance*, ed. G. Dionne. Kluwer Academic Publishers: Boston: 873-899.
- Mitchell, Olivia S., David Blitzstein, Judy Mazo, and Michael Gordon, eds. 2003. *Benefits for the Future Workplace*. Philadelphia, PA: University of Pennsylvania Press.
- Mitchell, Olivia S. and Angela M. Mikalauskas. 1988. "The Impact of Government Regulation on the Labor Market: A Survey of Research Findings." In *Mandating Benefits*, ed. Dallas Salisbury. Washington, DC: EBRI.
- Montgomery, Edward, Kathryn Shaw and Mary Ellen Benedict. 1992. "Pensions And Wages: an Hedonic Price Theory Approach." *International Economic Review* 33(1): 111-128.
- Nyce, Steven. 2003. "Internal Memo: Analysis of Choice Among Pension Plans," Watson Wyatt Worldwide. Washington, D.C.
- Nyce, Steven and Sylvester Schieber. 2002. "The Decade of the Employee: The Workforce Environment in the Coming Decade." *Benefits Quarterly*, First Quarter.
- Pension Benefit Guaranty Corporation. 2003. *Pension Insurance Data Book 2002* (7) Winter.
- Purcell, Patrick J. Updated 2003. "Pension Issues: Cash Balance Plans." Congressional Research Service. CRS Report For Congress. Washington, DC: CRS. August.
- Sanders, Bernard. 2001. "Sanders Begins Push for Senate to Include Cash Balance Amendment as Part of Pension Reform Bill." May 3. <http://bernie.house.gov/documents/2001/05-03-2001.html>.

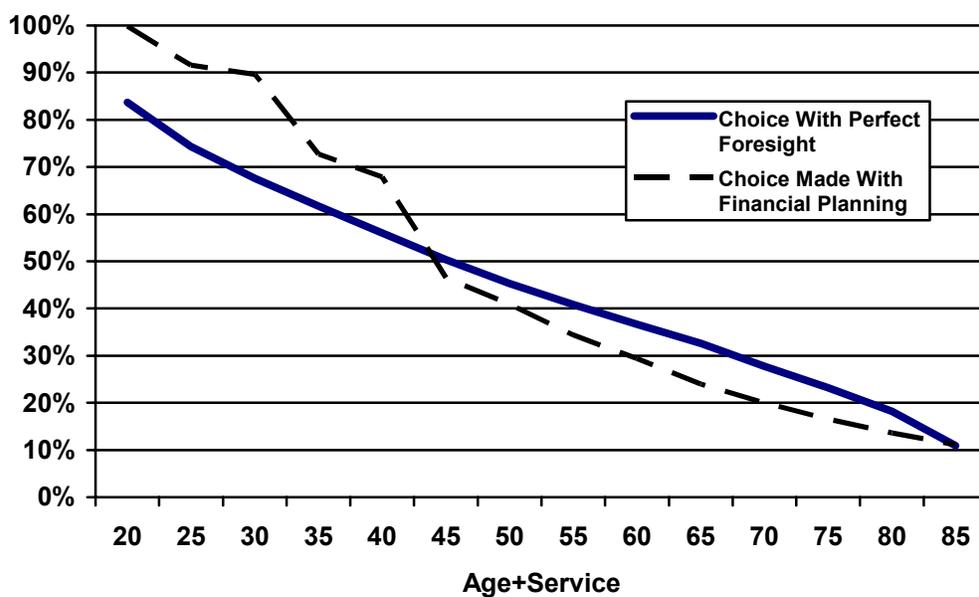
Sass, Steven. 1997. *The Promise of Private Pensions: The First Hundred Years*. Cambridge, MA: Harvard University Press.

Turner, John. 1993. *Pension Policy for a Mobile Labor Force*. Kalamazoo, MI: Upjohn Institute.



**Figure 1. Median Years of Tenure with Current Employer**

Source: Bureau of Labor Statistics (2002a)



**Figure 2. Choice of Cash Balance Plan In An Imperfect World**

Source: Authors' calculations of probability based for the perfect knowledge based on personnel files for a sample of large employers. Probabilities of choice with financial planning advice derived from Nyce (2003).

**Table 1. Benefit Formulas for DB and Cash Balance Plan Simulations**

	Benefit Formula	Early Retirement Reductions
Traditional DB Plan	1.1 % of final 5-year average pay times service	Reduced 2% per year from age 65 to 62, 4% per year from 62 to 60 and 5% per year from 60 to 55
CB Plan	Pay credits of 4% for first 10 years of service, 5% for next 10 year, 5.75% for 20 or more years of service	None

Source: Derived for authors from Watson Wyatt 2002/2003 COMPARISON Database

**Table 2. Comparison of Retirement Benefits Under Hybrid and Defined Benefit Plans**  
Lump Sum Value

	Hybrid Plan	Traditional DB Plan	% Difference: Hybrid vs DB Plan
Works for same employer for entire career	\$251,559	\$369,378	-31.8 %
Works for three different employers and vests in each pension plan	\$211,756	\$179,932	17.6%
Expected Value of Each Plan	\$214,542	\$193,192	11%

Source: Computations represent typical cash balance and DB plan as specified in Table 1.

**Table 3. Average Projected Benefit Security Ratio**

	2001	2002	% change
Traditional DB Plans	0.89	0.66	-26%
Cash Balance Plans	1.0	0.80	-20%
Pension Equity Plans	0.88	0.71	-19%

Source: Authors' calculations from disclosure statements of U.S. corporations DB pension plans annual reports filed under FASB 87 and 106.

**Table 4. Summary of Results under Alternative Conversion Patterns  
Change in Projected Unit Costs of Pension Plans**

	% Change in From Typical DB	% Change from Typical CB
WITHOUT 401(k) ENHANCEMENTS		
Straight Conversion	-11.6%	0 %
<u>Grandfathering Benefits</u>		
<u>For:</u> Workers 50+ With 10 Years of Service	-4.8	7.8
Workers 40+ With 10 Years of Service	-2.9	9.9
<u>Choice Options:</u>		
Choice To Workers Age 40+ with 10 Years of Tenure	-6.4	5.9
Choice To All Workers	-0.3	12.9
WITH 401(k) ENHANCEMENTS		
Straight Conversion	-1.6 %	0 %
<u>Grandfathering Benefits</u>		
<u>For:</u> Workers 50+ With 10 Years of Service	8.5	6.8
Workers 40+ With 10 Years of Service	10.4	8.6
<u>Choice Options:</u>		
Choice To Workers Age 40+ with 10 Years of Tenure	6.9	5.2
Choice To All Workers	13.0	11.2

Source: Authors' calculations.

## Appendix

To compute the projected unit cost for the DB and CB plans in our analysis, we used the following methodology:

For the traditional DB plans, the projected unit credit normal cost method is used. Under this method, the present value of benefits accrued this year, taking into account expected future pay increases, produces the annual plan cost. These calculations use assumptions similar to the valuation assumptions for the four companies defined benefit plans.

To assess the value of benefits under the cash balance plan, we must specify the interest rate credits applied to participant balances. For our analysis we assume a 7 percent annual interest rate credit.

Other assumptions used include the following:

Valuation interest rate	7.00%	
Annual salary increase		5.00
Social Security wage base increase	4.50	
CPI increase	4.00	
Representative turnover decrement rates		
At age 20	22.5%	
At age 35	7.5	
At age 50	1.5	

Mortality is assumed to occur at the rates in the unisex version of the 1994 Group Annuity Mortality Table. The value of termination benefits at all ages after vesting and prior to early retirement age is added to the value of retirement benefits to produce the total defined benefit values for all plans.

Table A1 shows the demographic characteristics of the workforces in the firms used for the analysis.

**Table A1. Simulated Firms Used for Analysis**

	Average Age	Average Tenure	Median Salary	Size	Industry
Company A	43.9	11.1	\$41,520	7,000	Durable Mfg
Company B	39.8	9.8	\$38,456	12,000	Telecom
Company C	42.7	12.6	\$54,935	9,000	Non-durable Mfg
Company D	35.9	6.8	\$32,287	15,000+	Wholesale/Retail

**Endnotes**

<sup>1</sup> Here we do not abstract from the possibility that workers might be permitted “buy back” their DB plans with their CB contributions. In a related analysis, Lachance et al. (2002) show that offering workers an open-ended chance to buy-back DB benefits could be quite expensive.