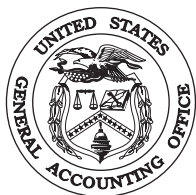


September 2000

# PRIVATE PENSIONS

## Implications of Conversions to Cash Balance Plans





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**Abbreviations**

BLS	Bureau of Labor Statistics
EEOC	Equal Employment Opportunity Commission
ERISA	Employee Retirement Income Security Act of 1974
IRA	individual retirement account
IRC	Internal Revenue Code
IRS	Internal Revenue Service
PBGC	Pension Benefit Guaranty Corporation
PWBA	Pension and Welfare Benefits Administration
SPD	summary plan description



United States General Accounting Office  
Washington, D.C. 20548

Health, Education, and  
Human Services Division

B-283648

September 29, 2000

The Honorable William J. Coyne  
Ranking Minority Member  
Subcommittee on Oversight  
Committee on Ways and Means  
House of Representatives

The Honorable Robert Andrews  
Ranking Minority Member  
Subcommittee on Employer-Employee Relations  
Committee on Education and the Workforce  
House of Representatives

The Honorable Major R. Owens  
Ranking Minority Member  
Subcommittee on Workforce Protections  
Committee on Education and the Workforce  
House of Representatives

Employer-provided pensions are an important source of income for many retired persons. To encourage employers to establish and maintain pension plans for their employees, the federal government provides preferential tax treatment under the Internal Revenue Code (IRC) for plans that meet certain requirements. The Joint Committee on Taxation estimates that in fiscal year 2000 the tax expenditure for qualified employer-sponsored pension plans will be about \$76 billion.<sup>1</sup> In exchange for preferential tax treatment, an employer is required to design the pension plan within legal limits that are intended to improve the equitable distribution and security of pension benefits. There has been recent controversy concerning how conversions of traditional defined benefit pension plans to cash balance

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<sup>1</sup>Fiscal year 2000 estimate, from Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 2000-2004*, prepared for the Committee on Ways and Means and the Committee on Finance, JCS-13-99, Dec. 22, 1999, p. 23. Pension contributions and investment earnings on pension assets are not taxed until benefits are paid to plan participants. As a result, these tax preferences largely represent timing versus permanent differences in tax revenue generation.

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plans can affect workers, especially those nearing retirement.<sup>2</sup> Questions have also been raised about the application of current tax qualification requirements to this new type of pension plan.

You asked us to (1) describe the prevalence and major features of cash balance plans and reasons why firms adopt them; (2) discuss how the use of cash balance plans can affect the pension benefits for workers of different ages and tenure, particularly after conversion; and (3) determine what information employers converting to cash balance plans typically provide to plan participants and how disclosure might be improved.

To address your questions, we conducted a random sample survey of 420 firms on the 1999 Fortune 1000 list and reviewed pension plan documents to examine the features of cash balance plans.<sup>3</sup> In addition, we conducted in-depth interviews with officials from 14 firms with cash balance or similar plans to discuss why they adopted such plans and to obtain information about how firms disclosed changes to their pension programs. We modeled pension plan design features to compare pension benefits provided by a “basic” cash balance plan and a defined benefit plan with a final average pay formula, common to large defined benefit plans.<sup>4</sup> Also, we interviewed various federal agency officials, pension consultants, and actuaries. We conducted our work between September 1999 and August 2000 in accordance with generally accepted government auditing standards. (See app. I for details on our scope and methodology.)

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## Results in Brief

Our survey of 1999 Fortune 1000 firms indicates that the number of firms sponsoring cash balance plans has increased within the past few years, with few firms sponsoring such plans before the early 1990s but increasing to about 19 percent of all Fortune 1000 firms this year. These plans cover an estimated 2.1 million workers. Firms in many sectors of the economy

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<sup>2</sup>Defined benefit plans generally pay retirement benefits on the basis of years of service, earnings, or both. Unlike traditional defined benefit plans, cash balance plans determine benefits on the basis of hypothetical individual accounts.

<sup>3</sup>The Fortune 1000 list ranks for-profit companies by operating revenue. The results of our survey can be generalized to all 1999 Fortune 1000 firms but not to all other firms. For purposes of this report, when we discuss the results of our survey, we refer to firms on the 1999 Fortune 1000 list.

<sup>4</sup>Final average pay formulas base benefits on a percentage of the participant’s final average earnings, multiplied by number of years of service.

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sponsor these plans but greater concentrations are found in the financial services, health care, and manufacturing industries. About 90 percent of the firms we surveyed that sponsor such plans previously covered their workers under a traditional defined benefit plan. Most of the conversions occurred within the past 5 years. Key reasons firms gave for converting include lowering total pension costs; adding a lump sum feature to increase the portability of pension benefits, thereby improving the firm's ability to recruit more mobile workers; and facilitating communication of the value of plan benefits. As with traditional pension plans, cash balance plan designs vary significantly.

Conversions to cash balance plans can be advantageous to certain groups of workers—for example, to those who switch jobs frequently—but can lower pension benefits for others. Cash balance plans provide a larger share of a participant's accumulated benefit earlier in a career, compared with a traditional defined benefit plan that is based on final average pay. As a result, conversions can increase the value of some workers' benefits, especially younger or short-tenured workers who leave firms before retirement. For example, a 30-year-old worker at the time of a conversion, who leaves a firm 10 years later, would receive a lump sum distribution from a cash balance plan about 1.5 times larger than that from a traditional plan based on final average pay, all other factors being equal. Other workers, however, can be disadvantaged after conversion to a cash balance plan.

Unlike traditional defined benefit plans, cash balance plans can result in a declining rate of normal retirement benefit accrual over time. This declining accrual rate can result in older workers' receiving lower benefits at retirement from a cash balance plan than they would have received from a traditional final average pay plan if it had not been converted. However, workers could also receive lower retirement benefits under a traditional plan if an employer reduces future accruals or terminates the plan. Under some circumstances, conversions to cash balance plans can also result in periods during which some workers do not earn additional pension benefits while other workers continue to accrue benefits. These situations, known as "wearaway," tend to last longer for older or long-tenured workers and occur because a participant's initial cash balance benefit is less than the value of the benefit accrued under the prior plan. While most of the firms in our survey that adopted cash balance plans included transition provisions to help protect the future benefits of workers, these provisions can vary in the extent to which they accomplish this objective.

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Current disclosure requirements provide minimum standards for the information sponsors must give participants about plan changes. We found wide variation in the type and amounts of information workers receive. The communications provided to employees vary from general statements about plan changes to specific examples of how a conversion to a cash plan might affect workers of different ages and tenure. For example, some firms provided employees with a short written notice while others gave them a copy of the actual plan amendment to inform them about the conversion to a cash balance plan. This type of information was often difficult to understand and provided employees little or no information on how the change could affect their future pension benefits. In other instances, firms provided employees with extensive educational materials and automated benefit calculators to help them understand how conversion to a cash balance plan could affect their individual benefits. Often, however, sponsors did not ensure that participants received sufficient information about plan changes that could reduce future benefit accruals.

This report includes matters for consideration by the Congress related to improving disclosure to participants about plan changes and preventing situations in which some participants do not accrue new pension benefits for a period of time after conversion to a cash balance plan. We also recommend actions to the Department of Labor concerning improvements to current disclosure requirements and to the Department of the Treasury and the Internal Revenue Service (IRS) concerning administrative actions they can take to clarify the regulatory treatment of cash balance plans. Today we are issuing another report on cash balance plans, particularly on the effects of such plans on the adequacy of retirement income.<sup>5</sup>

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## Background

IRC defines pension plans as either defined benefit or defined contribution plans and includes separate requirements for each type of plan. According to Bureau of Labor Statistics (BLS) survey data, most participants in large and medium-sized firms' defined benefit plans are covered by plans that use a final average pay formula that is based on years of service, average earnings over a specific number of years, and a multiplier. For example, a final average pay formula might determine benefits on the basis of 1.25 percent multiplied by years of service completed multiplied by the

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<sup>5</sup>*Cash Balance Plans: Implications for Retirement Income* (GAO/HEHS-00-207, Sept. 29, 2000).



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employee's average salary over the past 5 years of service.<sup>6</sup> Defined benefit plans typically express an accrued pension benefit as an annuity beginning at the plan-specified normal retirement age.<sup>7</sup> The firm, as the plan sponsor, is responsible for funding the promised benefit, investing and managing the plan assets, and bearing the investment risk.

Under defined contribution plans such as 401(k) plans, workers have individual accounts to which employers, employees, or both make periodic contributions. Defined contribution plan benefits are based on the contributions to and investment returns on these accounts. Employees bear the risk of poor investment performance and often control, at least in part, how the funds are invested.

Cash balance plans are referred to as hybrid plans because legally they are defined benefit plans but contain features that resemble defined contribution plans. Similar to traditional defined benefit plans, cash balance plans use a formula to determine pension benefits. However, cash balance plans express benefits as an "account balance." An employee account balance is based on hypothetical pay credits (percentage of salary or compensation) and hypothetical interest credits to employee accounts rather than an annuity. As with other defined benefit plans, under cash balance plans, employee pension benefits are paid from commingled funds invested in a pension trust on behalf of all participants, and plan trustees have a fiduciary responsibility for all assets in the pension trust. Hypothetical account balances need not be related to investment returns on assets in the plan's pension trust, and hypothetical accounts are not credited with the plan's actual investment gains or losses. Employees neither own these "accounts" nor generally make investment decisions. Cash balance plans are defined benefit plans because federal pension law defines any pension plan that does not provide individual accounts with benefits based solely on those accounts as a defined benefit plan.<sup>8</sup>

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<sup>6</sup>Another formula, called "career average," operates in the same way but bases benefits on the employee's pay averaged over all years of service with an employer rather than the final years.

<sup>7</sup>Defined as a series of periodic payments over a specified period of time or for the life of the recipient.

<sup>8</sup>26 U.S.C. 414(j).

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Federal law provides specific rules on how pension benefits must be accrued in order for plans to receive favorable tax treatment as well as safeguards to preserve benefits that participants have already earned. The law prohibits firms from amending a plan's benefit formula to reduce benefits that have already accrued. Firms can, however, change a pension plan's benefit formula to prospectively reduce or eliminate future benefit accruals. For example, defined benefit plan formulas can be amended to reduce the percentage of final pay used in the future to determine the annual benefit or limit the number of years over which benefits accrue. Firms can also terminate their pension plans. Defined benefit plan sponsors that terminate their plans are subject to an excise tax of up to 50 percent on any surplus assets in their pension trusts if they do not share excess pension assets with participants.

The Employee Retirement Income Security Act of 1974 (ERISA) mandates the types of information that must be disclosed to plan participants. The law requires firms to provide all plan participants with a summary plan description that describes the terms of the plan. Furthermore, whenever there is a significant change to the plan (called a plan amendment), firms must provide participants with a summary of the changes no later than 210 days after the end of the plan year in which the changes are adopted, known as a summary of material modification. Firms must notify participants of amendments that will result in a significant reduction in the rate of future benefit accrual at least 15 days before the effective date. This notification can entail providing either a copy of the amendment to the plan or a written summary of the change.

IRS, the Pension Benefit Guaranty Corporation (PBGC), and the Department of Labor's Pension and Welfare Benefits Administration (PWBA) are primarily responsible for enforcing laws related to private pensions. IRS enforces participation, vesting, and funding standards that concern how participants become eligible to participate in benefit plans and earn rights to benefits and that ensure that plans have sufficient assets to pay promised benefits. PWBA enforces ERISA's reporting and disclosure provisions and fiduciary standards, which concern how plans should operate in the best interest of participants. PBGC insures the benefits of participants in most private defined benefit pension plans. Employers can voluntarily submit an application to IRS, seeking approval of their plan when it is started, when the plan is amended to comply with law changes or plan design changes, or when the plan is terminated.

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Under the Age Discrimination in Employment Act, it is unlawful for employers to sponsor a defined benefit plan that stops a benefit accrual or reduces the rate of an employee's benefit accrual because of age.<sup>9</sup> The Equal Employment Opportunity Commission (EEOC) enforces federal law prohibiting employment discrimination, including discrimination based on age (aged 40 and older). IRC and ERISA have similar provisions prohibiting a defined benefit plan from ceasing accruals or reducing the rate of accrual because of the attainment of any age.<sup>10</sup>

Prompted by concern from members of the Congress and charges by participants in plans that were converted, federal agencies are now reviewing age discrimination and other issues raised by cash balance plans. In September 1999, EEOC began a review of potential age discrimination issues in cash balance conversions and is coordinating with agencies that are responsible for administering federal pension laws. Within the past year, more than 800 workers and retirees have filed age discrimination charges with EEOC concerning cash balance plans. EEOC has opened 34 cases to investigate these charges. The Department of the Treasury and IRS are currently reviewing tax qualification issues raised by cash balance plans. For example, in September 1999, IRS announced that it would begin requiring that applications for the approval of cash balance formula designs be forwarded to its headquarters for technical review, resulting in an effective moratorium on approving conversions to cash balance plans. In addition, in October 1999 IRS announced that it was soliciting public comments on issues related to the conversion of traditional defined benefit formulas to cash balance formulas. Further, in July 2000, the Office of Management and Budget issued a Statement of Administration Policy proposing legislative action to address certain issues raised by conversions to cash balance plans.

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## Cash Balance Plans Are Increasingly Common, and Plan Features Vary

Few firms that we surveyed on the 1999 Fortune 1000 list that sponsor cash balance plans adopted such plans before the early 1990s. Our analysis indicates that as of July 2000, about 19 percent of these firms sponsor cash balance plans. Firms adopted cash balance formulas for a variety of reasons, including reducing total pension costs, increasing portability to enhance the recruitment of younger or more mobile workers, and adding a

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<sup>9</sup>29 U.S.C. 623 (i)(1)(A).

<sup>10</sup>29 U.S.C. 1054(b)(H)(i) and 26 U.S.C. 411(b)(1)(H).

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lump sum benefit feature that can be used to better explain pension benefits to workers. As with traditional defined benefit plans, cash balance plans exhibit a considerable variety of designs, particularly in the amount of pay credited to participants' hypothetical accounts.

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### About One of Five Fortune 1000 Firms Sponsors Cash Balance Plans

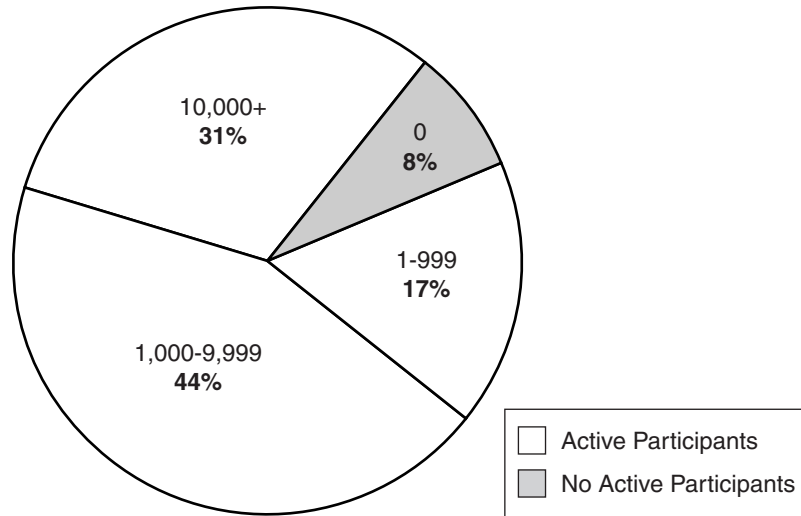
About 19 percent of Fortune 1000 firms sponsor cash balance plans that cover an estimated 2.1 million active participants.<sup>11</sup> Similar to traditional pension plans, many cash balance plans that we identified generally do not cover all workers at a firm. Instead, these plans cover particular segments of a firm's workforce such as managers or salaried employees or certain workers in a firm's subsidiary. Most cash balance plans we identified in our survey (an estimated 69 percent) have fewer than 10,000 active participants (see fig. 1), including 8 percent with no active participants because benefit accruals are frozen.<sup>12</sup> The most common reason sponsors froze a cash balance plan was that the plan was acquired as part of a merger or acquisition and the firm did not want to continue the cash balance plan.

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<sup>11</sup>About 4 percent of Fortune 1000 firms that we surveyed sponsor pension equity plans. Under pension equity plans, employees earn a percentage of final average pay expressed as a lump sum amount. These plans are similar to cash balance plans in that higher benefits accrue earlier in a career and lower benefits accrue later in a career than under traditional defined benefit plans.

<sup>12</sup>Frozen plans have stopped participants' benefit accruals and allow no new entrants into the plans but distribute benefits to participants and beneficiaries.

**Figure 1: Participant Coverage in Fortune 1000 Cash Balance Plans**



The earliest known cash balance plan has been in use since 1925, but such plans have become prominent since the 1980s. The earliest a firm in our survey had adopted a cash balance plan was 1985; more than 60 percent of the cash balance plans we identified have been adopted in the past 5 years.<sup>13</sup> Firms sponsoring these plans exist in many sectors of the economy, but the greater concentrations are found in the financial services, health care, and manufacturing industries. Some of these firms have undergone mergers or acquisitions and have adopted cash balance plans to “harmonize” benefits—that is, to provide the same pension plan for employees who had been covered by different plans. Most firms in our survey that sponsor cash balance plans previously covered their workers under another defined benefit plan. Other firms started cash balance plans as their first pension plan or to supplement existing defined contribution plans.

While we were told by pension practitioners, employer associations, and agency officials of firms’ continuing interest in cash balance or similar

<sup>13</sup>Our survey of 1999 Fortune 1000 firms indicates that sponsors of cash balance plans can adopt these plan formulas in several ways—by converting from a prior defined benefit formula, freezing a prior plan and starting a new cash balance plan, or starting a new cash balance plan as a first pension plan.

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hybrid plan designs, few of the firms we surveyed expected to adopt a cash balance plan in the future. About 3 percent of the firms we surveyed told us that they were considering whether to adopt a cash balance plan within the next 5 years, and about a third of these, or 1 percent of Fortune 1000 firms, told us that they plan to adopt a cash balance plan next year. All the firms considering adopting a cash balance plan told us that the continuing uncertainty as to whether such plans violate pension and age discrimination laws might discourage them from converting their plans.

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## Firms Adopt Cash Balance Plans for Different Reasons

Firms sponsoring cash balance plans told us that their decision to adopt these plans was based on a combination of factors such as the desire to become more competitive within their specific industry and to address changing workforce demographics. For example, some firms decided to adopt cash balance plans in order to improve their ability to recruit new workers by providing them with higher pension benefits earlier in their careers and allowing lump sum distributions so that pension benefits are more portable. Other firms told us, however, that they decided not to use cash balance plans because they had older or long-tenured workforces that could be adversely affected by a change to a cash balance plan.

Some firms we surveyed that chose to convert their plans cited the financial implications of changing to a cash balance plan as a key reason in their decision. Reducing the overall cost of the defined benefit plan was a primary reason some firms converted to a cash balance formula. For example, some firms have reduced costs by eliminating early retirement subsidies on future accruals. A PricewaterhouseCoopers survey of 100 cash balance plan sponsors found that 56 percent of firms expected the long-term cost of their defined benefit plans to decrease after conversion. Even when enhancements to other retirement programs were considered in conjunction with a conversion, 33 percent of the firms expected a decrease in the costs of their total retirement benefits package.<sup>14</sup> However, a few firms we surveyed reported that converting to a cash balance plan increased the cost of their defined benefit plan because their plan provided a higher level of benefit for all workers.

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<sup>14</sup>PricewaterhouseCoopers, *A UNIFI Survey of Conversions From Traditional Pension Plans to Cash Balance Plans* (Teaneck, N.J.: July 2000). The study surveyed 100 conversions of traditional defined benefit formulas to cash balance formulas.

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Converting to cash balance plans is also an alternative to terminating a pension plan. Firms can terminate their defined benefit plans, but doing so imposes various economic costs. When plan sponsors terminate defined benefit plans, the sponsors must pay income and excise taxes on any surplus assets, immediately vest participants in their accrued benefits, and provide participants with annuities or lump sum payments. These costs may prevent some firms from terminating their plans.<sup>15</sup> Instead, firms can convert to cash balance plans and achieve economic benefits from the surplus pension funds without incurring the costs related to plan termination. For example, converting to a cash balance plan can extend the period of time a firm would not have to make a contribution to the pension plan while still having the plan considered to be fully funded or overfunded—that is, the value of plan assets meet or exceed the value of currently accrued pension benefits. Also, after a conversion, if the pension plan’s assets earn a higher rate of return than the interest rate credited to hypothetical employee accounts, this can lower the overall cost of maintaining the cash balance plan.

Firms deciding not to adopt a cash balance formula cited increased costs as influencing their decision. These costs included increased administrative costs such as consultants’ fees to design the plan formula and the costs of developing individualized participant statements. In addition, cash balance plans can have ongoing administrative costs that are higher than those typically incurred by traditional defined benefit or defined contribution plans. Firms also cited the potential cost of special plan provisions to protect the benefits of workers nearing retirement as another reason not to convert.

Firms that adopted cash balance plans reported that the opportunity for the increased portability of benefits influenced their decision to adopt such plans. The lump sum benefit distribution feature common to most cash balance plans allows eligible workers, upon separation, to gain access to

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<sup>15</sup>Participants generally earn a nonforfeitable right to benefits after meeting a plan’s vesting requirement. Federal pension law sets specific minimum vesting requirements. When firms terminate their plans, affected participants become 100 percent vested in their accrued benefit on the termination date.

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their pension benefit.<sup>16</sup> These firms believed that offering a pension plan with such a benefit feature would enhance their recruitment of younger, relatively mobile workers. While traditional defined benefit plans can provide lump sum payments, historically many of these plans have not done so. Most of the plans in our survey did not allow lump sum distributions above \$5,000 before converting to a cash balance plan. Instead, participants generally received their benefits as an annuity at retirement. The percentage of plans in our survey offering lump sum distributions at both separation and retirement increased from 15 percent before conversion to 83 percent after conversion. Most of the firms we conducted in-depth interviews with stated that after conversion the majority of vested participants who have separated from the firm or retired opted for a lump sum payment, indicating its popularity.

Most firms that expressed a desire to attract and hire more mobile workers as a reason for converting did not, however, change their vesting requirement when converting from a traditional defined benefit plan to a cash balance plan. As under traditional defined benefit plans, workers under a cash balance plan must remain with a firm long enough to earn a right to such benefits. Large defined benefit plans typically have a “cliff” vesting requirement—that is, participants are 100 percent vested in their benefits after a certain number of years, with no rights to a pension benefit if they leave the firm before then. Most of these large plans have 100 percent vesting after 5 years. Seventy-two percent of the firms we surveyed with cash balance plans had a 5-year cliff vesting requirement, while the remaining firms sponsoring cash balance plans had various vesting requirements, including graded vesting.<sup>17</sup>

Finally, firms deciding to convert told us that employees better understand benefits under cash balance plans than under traditional defined benefit plans. Because benefits under cash balance plans are expressed as lump sum values rather than retirement-age annuities, some employees may better understand and value such plans. Furthermore, according to company officials, given that many of these employees also have a 401(k)

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<sup>16</sup>Lump sum distributions received before age 59-1/2 and not rolled into an individual retirement account (IRA) or another qualified employer plan are subject to a 10 percent excise tax in addition to ordinary income taxes. Generally, employers are required to withhold 20 percent of any distribution not rolled over into an IRA or a qualified employer retirement plan.

<sup>17</sup>Participants earn a right to a percentage of pension benefits over a period of up to 7 years.



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plan, the cash balance plan is more “visible” and comparable to benefits under the 401(k) plans.<sup>18</sup> This is in contrast to the view many employees have of their benefits under traditional defined benefit plans. Human resource and benefits officials at several firms we visited said that defined benefit plans have been one of the least understood and least appreciated benefits in a worker’s compensation package. Employees rarely focused on the benefits from a defined benefit plan until they neared retirement age.

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## Variations in Plan Design Features

As with traditional pension plans, significant variation exists in cash balance plan designs, particularly the benefit formulas. Thirty-five percent of cash balance plans in our survey provide level pay credits for all participants, regardless of age or years of service. Most plans, however, provide pay credits that increase, based on participant age or service. For example, one plan provides an annual pay credit of 3 percent of salary for participants younger than 30 that increases in increments up to 11 percent for participants aged 50 and older. Another plan provides annual pay credits of 3 percent for participants with 4 or fewer years of service with incremental increases up to 9 percent for participants with 25 or more years of service. About 30 percent of the cash balance plans in our survey, because they were integrated with Social Security, provided participants with higher pay credits on pay above the Social Security wage base.<sup>19</sup> For example, two plans provided 4 percent of pay for earnings that were subject to Social Security taxes (\$76,200 in 2000) and 8 percent for earnings that were not subject to Social Security taxes.

Cash balance plans generally credit interest to participant hypothetical accounts using an index tied to a Treasury security. About 80 percent of the cash balance plans in our survey tied interest credit rates in their plan formulas to the rate of return on a Treasury security. For example, we found that many cash balance plans credit interest on the basis of the yield to maturity for 30-year Treasury bonds, but some cash balance plans credit interest on the basis of the yield to maturity for 1-year Treasury bonds or another Treasury index.

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<sup>18</sup>Conversely, firms deciding not to convert cited the visibility of cash balance plans in the press and the employee response to adverse publicity that has resulted from some conversions as a significant drawback of cash balance plans.

<sup>19</sup>For additional information about the integration of pensions with Social Security, see *Integrating Pensions and Social Security: Trends Since 1986 Tax Law Changes* (GAO/HEHS-98-191R, July 6, 1998).

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## Conversions Can Be Advantageous for Some Workers but Can Result in Lower Benefits at Retirement for Others

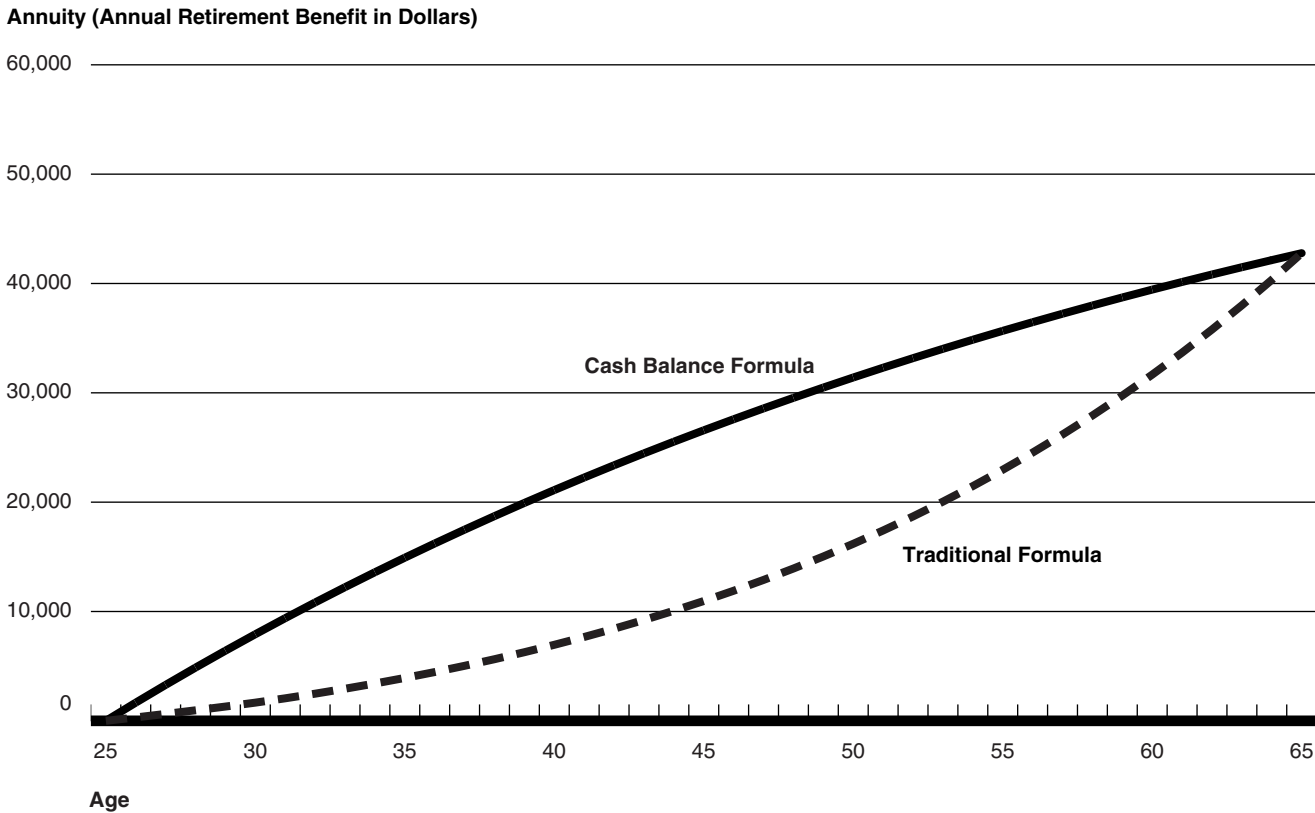
Conversions to cash balance plans can result in higher pension benefits accruing earlier in a worker's career and increased portability of benefits, which can be advantageous to younger or more mobile workers. However, the declining rate at which normal retirement benefits accrue in "basic" cash balance plan formulas (providing a level pay credit for all workers) can result in older workers receiving smaller annuities after conversion from a plan with a final average pay formula, assuming that the traditional plan remained unchanged. Conversions can also result in periods during which older workers accrue no new pension benefits while others do. While most Fortune 1000 firms in our survey that adopted cash balance plans have included transition provisions to mitigate the effects of plan formula changes on some participants, these provisions can vary in the extent to which they accomplish this objective.

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## Defined Benefit Plans With Final Average Pay Formulas Accumulate Benefits Differently Than Cash Balance Plans

Cash balance plans provide a larger share of a participant's accrued benefit earlier in the worker's career than a traditional defined benefit plan based on a final average pay formula. Traditional defined benefit plans express benefits as the normal retirement age annuity the participant has accrued to date. Typically, participants under a defined benefit plan with a final average pay formula accrue the greatest share of their benefits in the final years of their careers because benefits are based on completed years of service and final average salary, both of which usually increase as workers age. Generally, under a cash balance plan, the basis for determining benefits payable at normal retirement age includes both the hypothetical account balance (annual pay and interest credits) accrued to date plus the value of future hypothetical interest credits each pay credit would earn up to the plan's normal retirement age. As shown in figure 2, workers under a cash balance plan who have many years before reaching normal retirement age earn a greater proportion of their benefits early in their careers.

**Figure 2: Annual Annuity Benefits Under a Cash Balance Formula and a Final Average Pay Formula**



Note: Figures based on participation in a traditional final average pay formula or cash balance formula. Results are based on the assumption of a \$31,000 salary at age 25 (see app. I for details). Our assumption of equal benefits at the normal retirement age for purposes of illustration does not mean that the two formulas in this example would provide equivalent benefits at times other than normal retirement age or would result in equivalent costs to the sponsor.

Cash balance plans can result in a decreasing rate at which normal retirement benefits accrue over time. The rate at which normal retirement benefits accrue in both defined benefit final average pay plans and cash balance plans depends on the number of years participants have remaining until they reach the plan-specified normal retirement age. However, in a defined benefit plan with a final average pay formula, the rate of normal retirement benefit accrual increases as participants age, being driven by growth in service and wages. As with defined benefit plans, under the law, the accrued benefit in cash balance plans must be expressed as an annual benefit beginning at normal retirement age. Cash balance plans must

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express benefits in this manner to comply with defined benefit plan rules.<sup>20</sup> For the purposes of satisfying these rules, employee hypothetical accounts are not equal to the accrued benefits participants are entitled to receive. As a result, cash balance plans cannot simply provide participants hypothetical account balances as their benefit. Instead, the hypothetical balance must be calculated to comply with defined benefit plan accrual and other requirements.<sup>21</sup>

When a worker's hypothetical account balance in a given year is projected forward with hypothetical interest to normal retirement age, the rate of normal retirement benefit accrual declines as the employee ages, because each additional year's pay credit will have one less year in which future interest will compound. This declining rate of accrual results from plans providing for future interest credits in accordance with IRS Notice 96-8. The notice discusses the applicability of defined benefit plan rules to cash balance plans and provides that the accrual of future interest credits attributable to hypothetical pay credits may be required in the year in which the pay credit is allocated to a worker's account.

To demonstrate how a worker earns pension benefits under a traditional final average pay plan and a basic cash balance plan, we calculated several scenarios for workers of different ages. These hypothetical scenarios assume that a worker participates under either a basic cash balance plan or traditional final average pay formula (no conversion) until retirement and that the formulas result in equivalent benefits at retirement. In reality, workers may have very discontinuous work histories, work at many different places under various pension plans, or retire early.

Our comparative design scenarios illustrate the declining rate of normal retirement benefit accrual inherent in cash balance plans.<sup>22</sup> The basic cash

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<sup>20</sup>26 U.S.C. 411 and 26 U.S.C. 417.

<sup>21</sup>In a calculation of the actual benefit, the hypothetical account balance is projected forward with interest earnings to the plan-specified normal retirement age. Next, the projected balance is converted into a normal retirement age annuity, using a plan-specified discount rate and mortality assumptions. Finally, the value of the annuity is discounted back to current dollars, using the assumptions for mortality and interest specified by federal regulations, to convert the normal retirement age annuity into an actuarially equivalent lump sum in current dollars.

<sup>22</sup>The comparative design scenario calculations are additional computations we performed outside our cash balance conversion simulations. See app. I for more information on these scenarios.

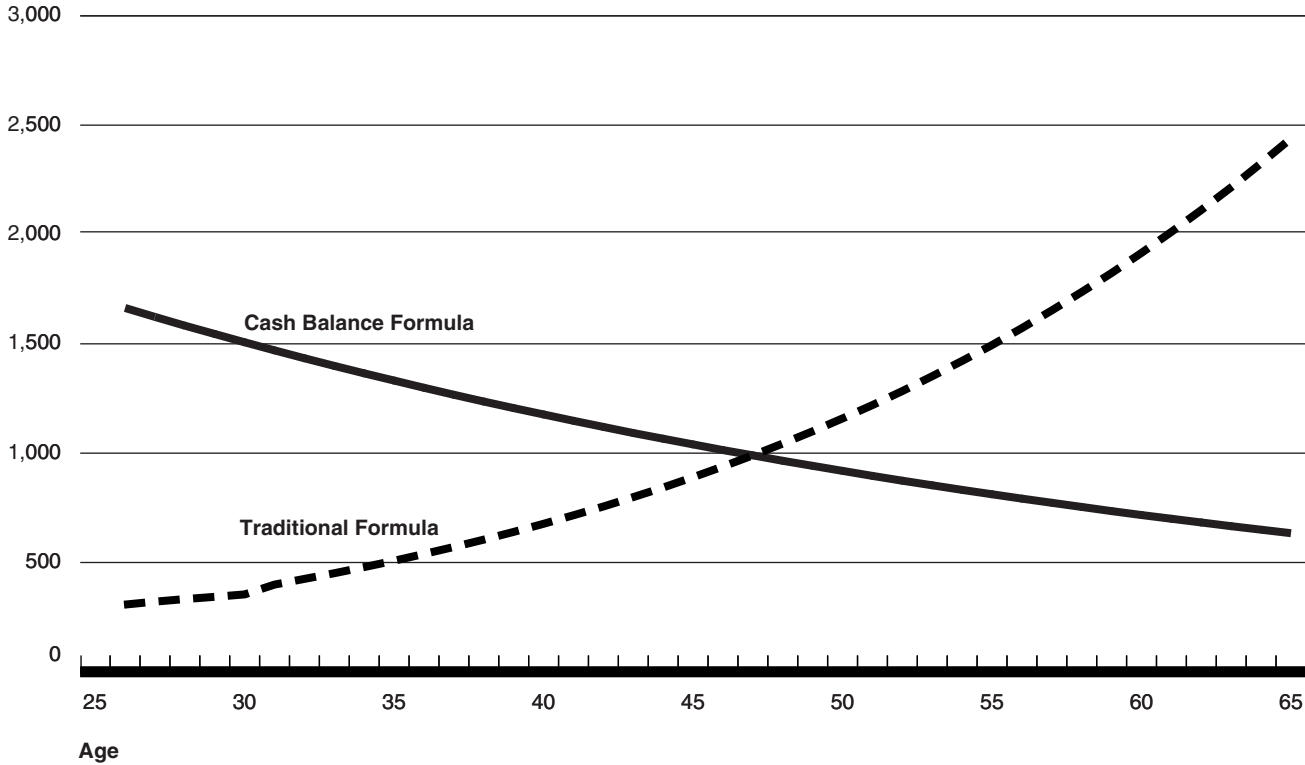
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balance plans we simulated add annuity benefits to a participant's total pension benefit at smaller dollar increments each year that the participant ages.<sup>23</sup> For example, a 25-year-old worker who is assumed to participate in a cash balance plan until retirement at age 65 accrues an incremental annuity benefit of approximately \$1,660 at age 26 but earns a smaller incremental benefit of about \$630 at age 65. In contrast, the traditional final average pay plan provided normal retirement benefits at an increasing rate as workers age. The same 25-year-old worker earns an incremental annuity benefit of \$310 at age 26 but earns a higher incremental benefit of about \$2,440 at age 65. The basic cash balance plan produced a declining rate of normal retirement benefit accrual for all hypothetical workers we modeled. (See fig. 3.)

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<sup>23</sup>We measure the rate of benefit accrual by calculating the incremental annuity benefit added by the traditional final average pay and cash balance formulas each year to the total annuity benefit. The incremental annuity added by both formulas for a given year is determined by subtracting the total annuity benefit of the previous year from the total annuity benefit of the current year. See app. II for a discussion of how cash balance accounts were converted to annuity equivalents.

**Figure 3: Rate of Accrual for a Cash Balance Formula and a Traditional Final Average Pay Formula**  
Additional Annuity (in Dollars)



Note: Results are based on the assumption of a \$31,000 salary at age 25 and an entire career under a cash balance formula or a traditional final average pay formula.

A cash balance plan's declining rate of normal retirement benefit accrual as workers age is the reason some have charged that these plans are age discriminatory. Cash balance proponents define the accrued benefit as the employee's hypothetical account balance. Under this definition, cash balance plans generate a level rate of accrual for all employees regardless of age and therefore do not appear to raise issues of disparate treatment of employees based on age. Critics state that cash balance plans, as defined benefit plans under the law, must express an employee's accrued benefit as an annual benefit beginning at normal retirement age or the actuarial

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equivalent to a deferred annuity.<sup>24</sup> When cash balance plans are viewed in this way, the amount of the actuarially determined benefit is a function of the participant's age and decreases as the participant ages. Therefore, critics argue, cash balance plans violate the prohibition on age discrimination. Federal agencies are considering the issue of whether cash balance plans violate age discrimination statutes. Participants have filed a number of court cases alleging that cash balance plans are age discriminatory but no definitive decision has been reached.

There is uncertainty concerning whether plan sponsors must adhere to IRS' guidance on calculating cash balance benefits. The methodology described in Notice 96-8 has been subject to legal challenge in federal court. Two recent U.S. Court of Appeals decisions have approved the methodology.<sup>25</sup> When Notice 96-8 was issued, IRS characterized it as including proposed interest rate equivalencies that were to be incorporated in a subsequent regulation, but nothing more has been promulgated on this subject. However, IRS has determined whether cash balance plans comply with current defined benefit plan requirements on the basis of its position that Notice 96-8 represents current law.

It should be noted that a cash balance plan can result in a declining rate of normal retirement benefit accrual over a worker's career but not necessarily a lower benefit than a defined benefit plan with a final average pay formula would provide. The actual benefit that any individual worker would receive under either plan would depend on a variety of factors, particularly the actual design of the specific pension plan. Workers under a cash balance plan who leave a firm before retiring could ultimately achieve either a higher or a lower pension benefit at retirement. For example, a worker who elected a lump sum payment option could receive a higher or lower retirement benefit, depending on the rate of return of the investments and whether the money were preserved until retirement. We discuss these issues in more detail in another report we issued

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<sup>24</sup>26 U.S.C. 411(a)(7).

<sup>25</sup>Lyons v. Georgia Pacific Corporation Salaried Employees Retirement Plan, No. 99-10640, 2000WL 1140673 (11th M.D.S.P. Cir. Aug. 11, 2000), reversing 66 F. Supp. 2d 1328 (N.D. Ga. 1999), and Esden v. Retirement Plan of the First National Bank of Boston, No. 99-7210 (2nd Cir. Sept. 12, 2000), reversing 182 F.R.D. 432 (D. Vt. 1998).

concurrently on the potential implications of cash balance plans on retirement income.<sup>26</sup>

### Conversions to Cash Balance Plans Can Provide Higher Benefits for Some Workers

Conversions to cash balance plans can have distributional effects in terms of the lump sum benefits that favor vested younger workers and short-tenure workers. This group can be a significant percentage of a firm's workforce, depending on the specific firm and industry. Plan sponsors told us that the vast majority of participants under cash balance plans elect a lump sum distribution rather than an annuity when they are given a choice. For many workers, these distributions can be greater than those provided by a plan with a final average pay formula.

We compared lump sum benefits that basic cash balance plans can provide with lump sum benefits from the traditional final average pay formula after conversion for the workers we modeled.<sup>27</sup> Compared with the final average pay formula, the basic cash balance plan formula can provide larger lump sum distributions for the younger workers we modeled for a period of time after conversion. For example, anytime within the next 14 years, a 35-year-old worker at conversion would receive higher lump sum benefits from the cash balance plan upon leaving the firm. As shown in table 1, a 30-year-old at conversion would when leaving a firm receive a larger lump sum distribution from the cash balance plan at any given age until reaching 53.

**Table 1: Lump Sum Distributions From a Traditional Final Average Pay Formula and a Cash Balance Formula After Conversion**

Age at separation	Final average pay <sup>a</sup>	Cash balance <sup>b</sup>
30	\$2,476	\$2,476
35	7,849	13,699

<sup>26</sup>Cash Balance Plans: Implications for Retirement Income (GAO/HEHS-00-207, Sept. 29, 2000).

<sup>27</sup>Working with plan consultants and actuaries, we developed a model that provides illustrative scenarios of the effects of conversion to a cash balance plan on the benefits of workers of different ages and tenure. While there is significant variation in cash balance plan designs, the design features we modeled for both the traditional and cash balance formulas, and related assumptions, are consistent with those that large firms commonly use. See app. II for information on our simulations.



(Continued From Previous Page)

<b>Age at separation</b>	<b>Final average pay<sup>a</sup></b>	<b>Cash balance<sup>b</sup></b>
40	18,684	30,358
45	39,618	54,510
50	79,096	88,926
53	117,686	116,000
55	152,611	137,322
60	288,878	204,673
65	544,153	297,625

Note: Results are based on baseline scenario assumptions for a 30-year-old worker at conversion and show several possible ages when the worker might leave the firm. The 30-year-old worker was assigned a tenure and income value at conversion that correspond to the worker's age. Lump sum distributions paid from the traditional formula are calculated on the basis of annuity values that the formula would have produced had no conversion occurred and in accordance with IRC 417(e) regulations. Lump sum values are comparable at given ages but are not comparable across years.

<sup>a</sup>Based on normal retirement age annuity.

<sup>b</sup>Nominal account balance.

As with traditional defined benefit plans, workers must meet a plan's vesting requirement before they have a right to their accrued pension benefit. BLS reported that median tenure among all workers aged 25 and older was 4.7 years in 1998, indicating that some workers change jobs before vesting. As we discussed earlier, most cash balance plans, like many traditional defined benefit plans, have a 5-year vesting requirement. Plan sponsors we interviewed told us that the 5-year vesting requirement of many cash balance plans results in some short-term, mobile workers' not benefiting from the higher benefits provided by cash balance plans because they leave before vesting and forfeit their accrued benefits.

In addition to increasing the value of preretirement lump sum distributions for many workers, conversions to cash balance plans can benefit workers in other ways. For example, because cash balance plans spread benefit accruals more evenly over a worker's career than a traditional defined benefit plan with a final average pay formula does, workers can accrue higher benefits sooner. This is especially important for workers who change jobs frequently or move in and out of the workforce. According to a Society of Actuaries study of vested workers with 5 or more years of service, 45 percent of workers terminate employment before completing 10

years of service.<sup>28</sup> This length of service allows workers to earn a right to their pension benefits. Generally, cash balance plans allow vested participants to receive preretirement lump sum distributions when they leave a firm. Many traditional defined benefit plans, however, do not offer such an option. When participants leave firms that sponsor final average pay or other traditional defined benefit plans, their normal retirement-age annuity benefits are frozen when they separate. Because many cash balance plan participants can receive preretirement lump sum distributions, they can invest these funds for retirement or transfer the distribution to their new employer's pension plan. Finally, as with other defined benefit plans, PBGC insures cash balance plan participants' benefits against the risk of benefit loss when a plan terminates with insufficient assets to pay promised benefits.

### Conversions to Cash Balance Plans Can Reduce Older Workers' Future Benefits

Depending on the age of a participant at conversion and a plan's design features, conversions of defined benefit plans with final average pay formulas to cash balance plans can result in lower annuities for some participants than they would receive if no conversion occurs.<sup>29</sup> We used our model to compare the annuity benefit provided by a basic cash balance plan at normal retirement age with the annuity that a traditional final average pay formula would have generated at retirement had no conversion occurred and the traditional plan continued unchanged. After conversion, the decreasing rate of normal retirement benefit accrual in the basic cash balance plan we modeled produces a lower annuity at retirement compared with the annuity benefit that traditional final average pay formula would generate.<sup>30</sup> For example, a 45-year-old worker at the time of conversion receives an annual annuity of about \$18,500 at retirement from the cash balance plan instead of the \$39,800 annuity the worker could have received

<sup>28</sup>Steve Kopp and Lawrence Sher, "A Benefit Value Comparison of a Cash Balance Plan With a Traditional Final Average Pay Defined Benefit Plan," *The Pension Forum* (Schaumburg, Ill.: Society of Actuaries, 1998).

<sup>29</sup>Lower annuity benefits accrued after conversion to a cash balance formula may be offset to the extent that sponsors increase other benefits at the time of conversion. For example, several representatives of firms we spoke with stated that firms increased contributions to their defined contribution plan or added a stock-purchase plan to the benefit package.

<sup>30</sup>Except where indicated, the traditional final average pay formula we modeled does not include an early retirement subsidy, and neither the traditional formula nor the cash balance formula we modeled is integrated with Social Security. See app. I for more information.

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from the defined benefit plan with a final average pay formula.<sup>31</sup> Likewise, a worker 50 years old at conversion receives an annual annuity of about \$17,800 from the cash balance plan rather than the \$35,100 annuity the final average pay formula could have provided. For all workers we modeled, conversions to the basic cash balance plan resulted in lower annuities at the plan's normal retirement age than resulting from the final average pay formula.

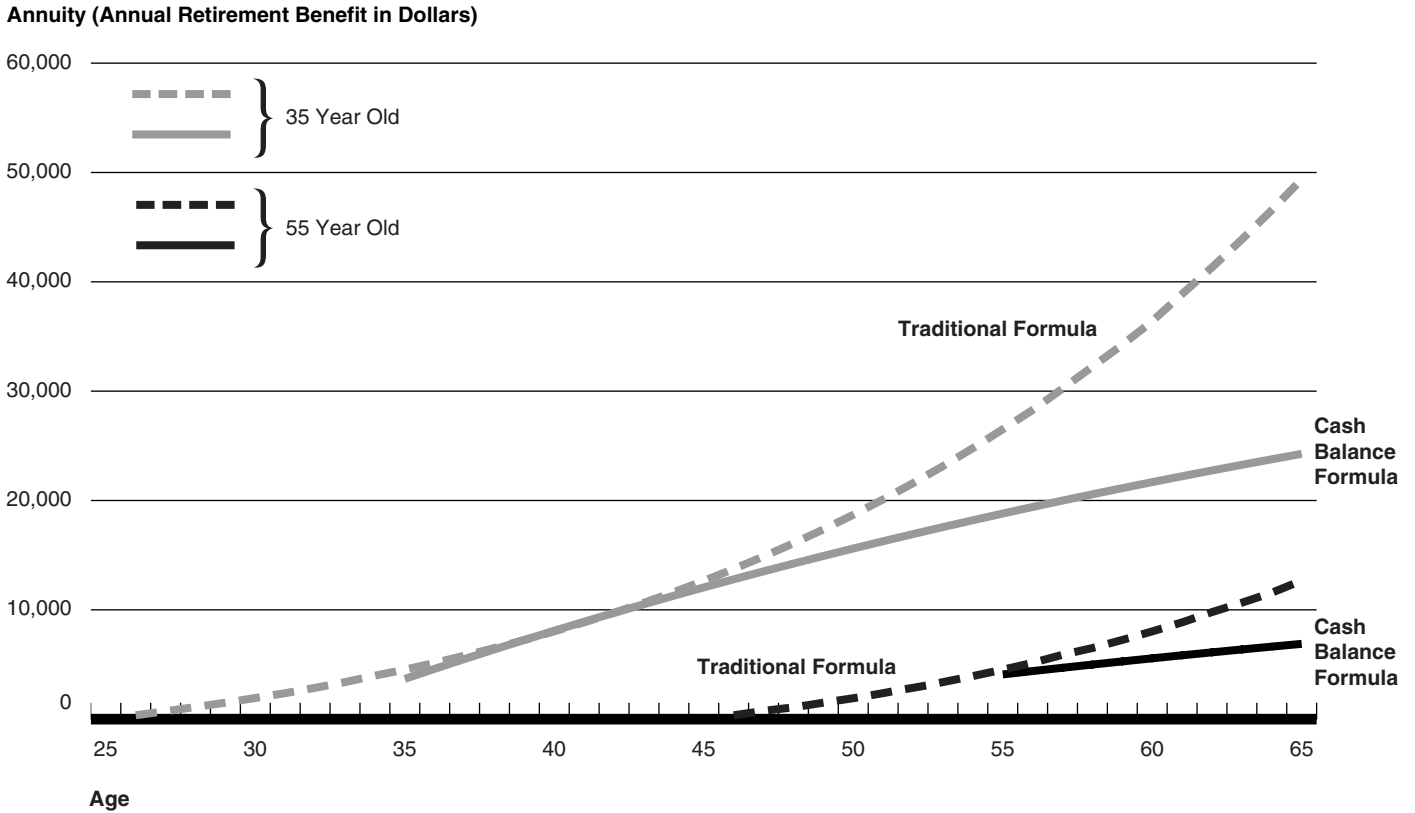
For workers with equal salary and tenure at conversion, the basic cash balance plan we modeled produces the lowest annuity at retirement for the worker who was oldest at conversion. This results from older workers having fewer years after conversion to earn benefits from the cash balance formula and a lower rate of normal retirement benefit accrual compared with the prior final average pay formula. For example, we modeled benefits from a basic cash balance formula for a 35-, 45-, and 55-year-old worker with equal salary and tenure at conversion.<sup>32</sup> At retirement, the worker who was 55 years old at conversion receives an annual annuity of \$6,900 from the cash balance plan, while the 35-year-old and 45-year-old workers receive annuities of approximately \$24,300 and \$12,600 per year, respectively, at retirement (see fig. 4). Conversion to the cash balance plan resulted in lower annuities for each of these workers compared with the annuities they would have received had no conversion occurred. The rate of normal retirement benefit accrual generated by the cash balance plan is lowest for the 55-year-old worker (see fig. 5.)

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<sup>31</sup>Worker age refers to the age of a worker at conversion to a cash balance formula. The 45-year-old worker has a salary of \$45,000 and 20 years of tenure at conversion, and the 50-year-old worker has a salary of \$47,000 and 25 years of tenure at conversion. App. II discusses the hypothetical worker profiles we developed.

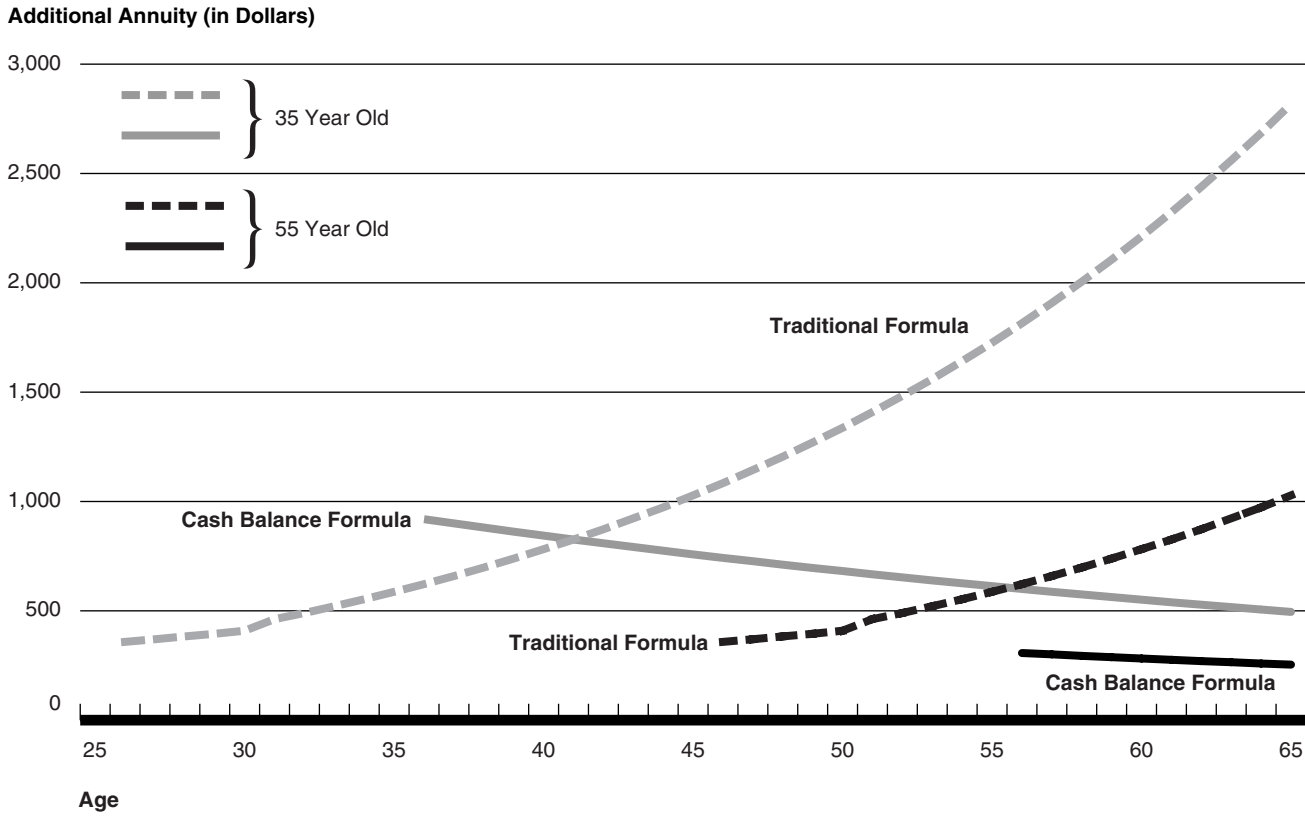
<sup>32</sup>For all three workers whom we modeled, salary is \$40,000 and tenure is 10 years at conversion.

Figure 4: How Conversion to a Cash Balance Plan Potentially Lowers Annuities



Note: Model results are based on the assumption of \$40,000 salary and 10-year tenure at conversion for both the 35-year-old and the 55-year-old worker at conversion. See additional assumptions in app. II.

**Figure 5: Incremental Benefit Accruals for Workers of Different Ages Under Different Formulas**



Note: Model results are based on the assumption of \$40,000 salary and 10-year tenure at conversion for both the 35-year-old and the 55-year-old worker at conversion. See additional assumptions in app. II.

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## Conversions to Cash Balance Plans Can Create Periods When Participants Accrue No New Pension Benefits

Conversions to cash balance plans sometimes result in “wearaway” situations in which some workers do not earn additional pension benefits after conversion while other workers continue to accrue benefits.<sup>33</sup> A wearaway period is created at conversion when a participant’s opening hypothetical account balance is set at less than the present value of his or her prior accrued benefits—that is, the amount benefits would currently equal if paid out as a lump sum. During wearaway, hypothetical pay and interest credit contributions do not represent new pension accruals until the cash balance account exceeds the value of benefits accrued under the prior formula. This is because workers who leave a firm during a wearaway period are entitled to receive the higher benefit they had accrued under the old formula before conversion.

Wearaway established at conversion tends to be longer for older workers. For example, the basic cash balance plan we modeled as establishing opening account balances at less than the present value of prior accrued benefits generated a 2-year lump sum wearaway for a 35-year-old worker, a 4-year wearaway for a 45-year-old worker, and an 11-year wearaway for a 55-year-old worker at conversion (see table 2).<sup>34</sup> This is because older workers generally accrue larger benefits before conversion. Thus, older workers must wait longer before their hypothetical balances catch up to the value of prior accrued benefits and new benefits begin to accrue. Wearaway created at conversion is also problematic for older workers because these periods often occur during the years when the traditional formula would have provided the most favorable rate of pension benefit accrual for them had no conversion occurred.

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<sup>33</sup>See app. II for a discussion of how we determined opening balances and the assumptions we used in valuing prior accrued benefits. Except for simulations in which we modeled a lump sum wearaway at conversion, all opening balances were established by calculating the present value of prior accrued benefits in accordance with IRC 417(e)(3) at conversion. To model lump sum wearaway at conversion, we assumed a discount rate higher than the mandatory rate used to determine minimum distributions from defined benefit plans.

<sup>34</sup>Assuming no change in the mandatory discount rate for determining the minimum lump sum distribution from defined benefit plans. At conversion, the 35-year-old worker has a salary of \$40,000 and 10 years of tenure, the 45-year-old worker a salary of \$45,000 and 20 years of tenure, and the 55-year-old worker a salary of \$47,500 and 30 years of tenure.

**Table 2: Lump Sum Wearaway Created at Conversion for a 45-Year-Old Worker**

January 1	Value of prior accrued benefit	Hypothetical cash balance account
1998	\$30,849 <sup>a</sup>	\$23,709 <sup>b</sup>
1999	32,749	27,294
2000	34,774	31,157
2001	36,931	35,317
2002	39,231	39,792

Note: The 30-year Treasury rate represents the monthly rate for December of the previous year. Results are baseline scenario assumptions. The opening account balance was established as the present value of prior accrued benefits at the date of conversion, using an interest rate of 6.99 percent or the December 1997 30-year Treasury rate plus 1 percent. This example assumes no change in the mandatory discount rate (5.99 percent) used to calculate the lump sum value of prior accrued benefits. Lump sum values are comparable at given ages but are not adjusted to be comparable across years. App. II describes the model's operation and the assumptions used in calculating pension benefits.

<sup>a</sup>Minimum lump sum at conversion.

<sup>b</sup>Valued at 6.99 percent.

We also simulated several examples in which workers' salary and tenure were equal at conversion in order to determine whether the length of a wearaway created at conversion can differ for workers of different ages.<sup>35</sup> In most of these simulations, the length of a lump sum wearaway created at conversion was extended 1 to 2 years for workers with equal salary and tenure but different ages. For example, we found that a 45-year-old faces a 4-year wearaway at conversion, while a 55-year-old with the same salary and tenure at conversion faces a 6-year wearaway. Another simulation we modeled indicates that a 40-year-old worker faces a 3-year wearaway at conversion while a 50-year-old worker with the same salary and tenure faces a 4-year wearaway. Although our simulations show that differences in wearaway periods based on age can be small, the older worker faces the longer wearaway at conversion in every instance in which a difference in wearaway periods emerged.

Plan sponsors determine whether to create wearaway at conversion. When defined benefit plan sponsors provide accrued benefits as preretirement lump sum distributions, they must follow federally mandated assumptions.

<sup>35</sup>To model lump sum wearaway at conversion, we established opening account balances upon conversion, using a discount rate higher than the mandatory rate used to determine minimum distributions from defined benefit plans. For these simulations, all plan features and the discount rate were held constant.

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However, current federal law does not govern how plan sponsors set opening hypothetical account balances for cash balance plans, provided that a plan ensures that participants do not receive less than the present value of prior accrued benefits if they separate from the employer. Plan sponsors can set the opening balances with any discount rate and set of mortality assumptions they choose. Thus, at conversion, cash balance plan sponsors can select assumptions that establish opening account balances at amounts lower than those they would be required to pay as lump sum distributions of benefits accrued under the prior formula. Many firms, however, choose not to create a wearaway at conversion. According to a recent survey by PricewaterhouseCoopers, 60 percent of cash balance plan conversions that established opening account balances at the value of prior accrued benefits used a discount rate equal to or lower than the mandatory discount rate at conversion, thereby avoiding wearaway at conversion.<sup>36</sup>

Wearaway can also occur outside the control of plan sponsors after a conversion. In this instance, wearaway occurs because of fluctuations in the federally mandated discount rate for determining lump sum distributions from defined benefit plans. The value of the distributions rises when the mandatory discount rate falls, and the value falls when the mandatory discount rate rises. Therefore, a falling mandatory discount rate can generate wearaway while participants remain with the sponsor, even when no wearaway was created at conversion. For example, we modeled a scenario in which no wearaway was created at conversion and the mandatory discount rate changes after conversion. Table 3 shows that the fall in the discount rate 1 year after conversion causes the value of the annuity benefit accrued under the prior formula to exceed the value of the 35-year-old worker's hypothetical account balance, resulting in a wearaway period. Two years after conversion, the mandatory discount rate rises, and the lump sum value of the participant's prior accrued benefit falls below the participant's hypothetical account balance.

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<sup>36</sup>PricewaterhouseCoopers, *A UNIFI Survey of Conversions From Traditional Pension Plans to Cash Balance Plans* (Teaneck, N.J.: July 2000). Eighty-three of the 100 plan conversions established opening account balances as the present value of prior accrued benefits.



**Table 3: The Creation of Wearaway Periods After Conversion by Fluctuation in the Mandatory Discount Rate for Defined Benefit Plans**

January 1	30-year Treasury rate	Value of prior accrued benefit	Hypothetical cash balance account
1998	5.99%	\$7,590	\$7,590
1999	5.06	11,196	10,017
2000	6.35	7,553	12,649

Note: The 30-year Treasury rate represents the monthly rate for December of the previous year. Results are for a 35-year-old worker at conversion and are based on baseline scenario assumptions. The lump sum values are comparable at given ages but are not adjusted to be comparable across years. App. II describes the model's operation and the assumptions used in calculating pension benefits.

In addition to arising from conversion of a final average pay formula to a cash balance formula, wearaway can arise in relation to annuity benefits that participants have earned as of conversion. For purposes of this report, annuity wearaway refers to a period of time after conversion when the annuity benefit produced by the cash balance formula is less than the annuity benefit earned under the prior formula up to the date of conversion. Whether annuity wearaway results from conversion to a cash balance formula depends on several factors, including how the plan sponsor determines opening balances, the cash balance formula design, and whether the prior formula has an early retirement benefit.

Annuity wearaways can arise as a result of conversion to a cash balance formula, depending on the form of annuity benefit that the worker selects and the design of early retirement benefits in the prior formula. Even when no lump sum wearaway is established at conversion, annuity wearaway can arise on the worker's accrued normal or early retirement benefits. For example, as indicated above, the 45-year-old worker described in table 2 has a 4-year lump sum wearaway, assuming the account balance is established with a 6.99 percent interest rate (the rate of return on 30-year Treasuries plus 1 percent), but there would be no lump sum wearaway if the opening account balance was established with a 5.99 percent interest rate. Table 4 is based on an example in which the participant's opening account balance was established as the minimum lump sum distribution of prior accrued benefits from conversion of a final average pay formula with an early retirement subsidy. In this example, there is a wearaway on both the accrued normal retirement benefit and the early retirement benefit

earned as of the date of conversion.<sup>37</sup> Specifically, if the prior formula had included a subsidized early benefit, the 45-year-old worker who elects to receive early retirement benefits at age 60 has a 9-year wearaway of the early retirement annuity benefit even if the opening balance is established with the mandatory 417(e) discount rate.<sup>38</sup>

**Table 4: Early Retirement Benefit Wearaway Payable at Age 60**

January 1	Final average pay <sup>a</sup>	Cash balance <sup>a</sup>
1998	\$9,373	\$6,196
1999	9,373	6,622
2000	9,373	7,038
2001	9,373	7,444
2002	9,373	7,840
2003	9,373	8,226
2004	9,373	8,603
2005	9,373	8,971
2006	9,373	9,379
2007	9,373	9,679

Note: Results are for a 45-year-old worker with a \$45,000 salary and 20 years of tenure at conversion. At conversion, the participant's prior accrued normal retirement age annuity benefit is \$10,188. The opening account balance was established as the present value of prior accrued benefits at the date of conversion, using an interest rate of 5.99 percent or the December 1997 30-year Treasury rate. The cash balance formula credits interest at 5.99 percent and credits pay at 5 percent. The prior formula's early retirement subsidy is based on eligibility at age 55 with 30 years of service, where the normal retirement benefit is reduced by 4 percent annually for benefits received before age 62.

<sup>a</sup>Ninety-two percent of the normal retirement age benefit of \$10,188.

<sup>37</sup>A 2-year wearaway on the participant's prior accrued normal retirement annuity benefit occurred as a result of conversion to the cash balance formula.

<sup>38</sup>In the 10th year after conversion, the employee comes out of the wearaway period on the early retirement benefit because the life annuity beginning at age 60 is \$9,373 annually, based solely on benefits before conversion, and is \$9,679 annually, based on the hypothetical account balance at age 60 (which is the sum of the opening account balance established with a 5.99 percent interest credit rate, 10 years of pay credits thereafter from age 45 to age 55, and 15 years of interest on those amounts to age 60 at 5.99 percent annually).

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## Transition Provisions Vary in How They Mitigate the Adverse Effects of Plan Changes on Older Workers

Most of the Fortune 1000 firms we surveyed that adopted cash balance plans included various provisions to mitigate the potential reductions in some workers' benefits, but these provisions can vary in the extent to which they mitigate potential reductions in expected benefits.<sup>39</sup> While 84 percent of the firms in our survey that adopted cash balance plans included one or more features to mitigate potential reductions in future benefits for some or all participants, our analysis indicates that these provisions can provide varying levels of protection. Some firms protected against a potential reduction in future benefits by grandfathering plan participants at the time of conversion. Grandfathering allows eligible participants to continue accruing benefits under the prior formula or entails operating both formulas and providing eligible participants with the greater benefit. Grandfathering can be implemented in various ways, each affecting different groups of workers. For example, in one firm in our survey eligible participants who had a minimum of 60 points based on age and service at the date of conversion receive benefits from the formula that provides the greater benefit. Another firm in our survey allowed all participants aged 45 and older with a minimum of 60 points, based on age and service, to continue accruing benefits under the prior formula.

To mitigate the potentially adverse effects of adopting a cash balance formula on older participants, some firms incorporated features such as formulas that provide additional pay credits on the basis of a participant's age or years of service or they increased opening account balances. For example, one plan in our survey provides additional pay credits that range from 5 to 10 percent (above the ongoing pay credit in the plan formula) for eligible participants 40 years old or older at conversion that increase with age. Another plan in our survey enhanced opening account balances by increasing initial balances on the basis of a specific percentage related to a participant's age and service.

Including age-weighted pay credits in the cash balance formulas that we modeled usually produced a larger annuity for the participant at retirement than the basic cash balance formula. We modeled conversions to several

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<sup>39</sup>Our analysis of transition provisions includes cash balance plans we identified as becoming operational through a formula amendment (conversion of a traditional defined benefit formula) and cash balance plans started as new plans after the plan sponsor froze a prior defined benefit formula. Measuring the effectiveness of various transition provisions in order to address the potential loss of expected benefits would require an analysis of individual plan designs and firm workforce data.

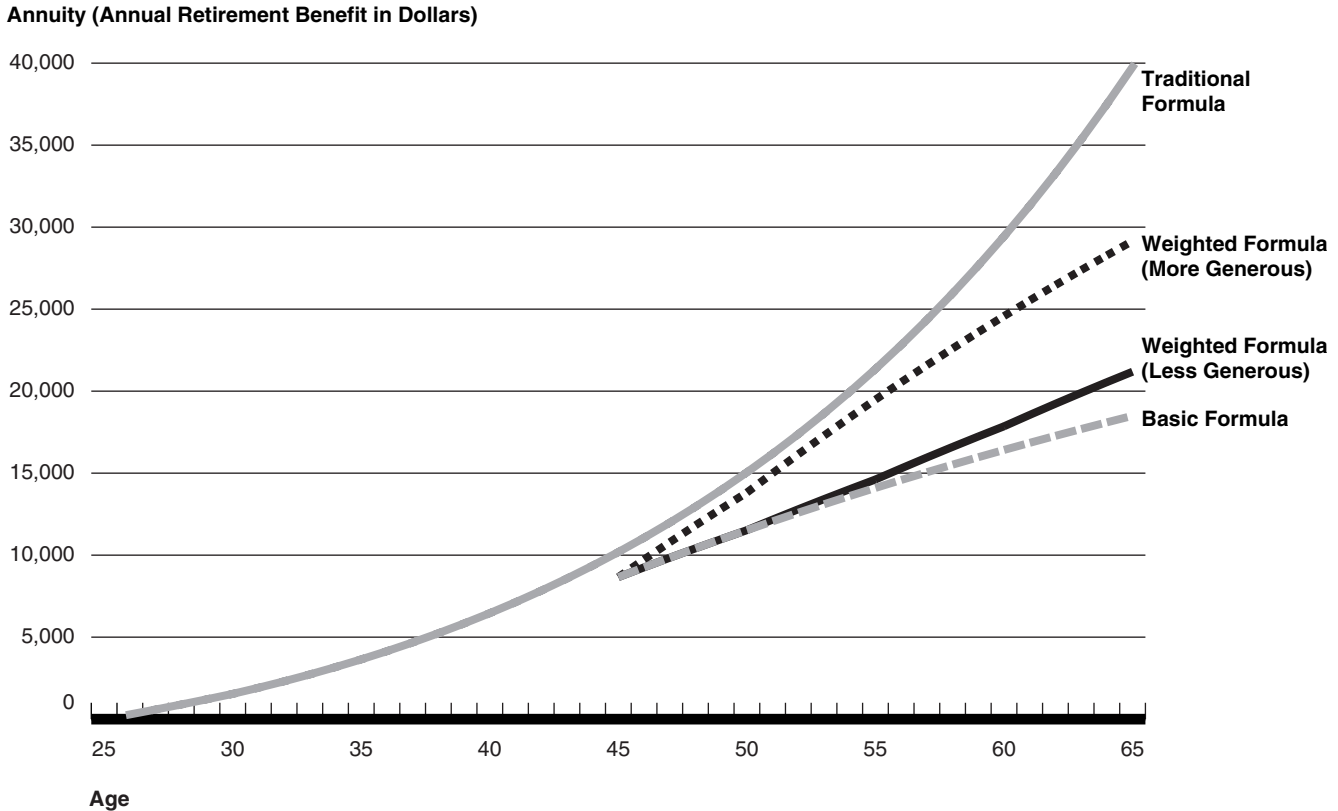
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variations of cash balance formulas with weighted pay credits for hypothetical participants ranging from age 30 through age 55 at conversion, and they produced similar results. For example, a 45-year-old participant would receive an annuity of approximately \$29,200 per year from a cash balance plan with weighted pay credits compared with \$18,500 from the basic cash balance plan (see fig. 6). However, under another, less generous formula with age-weighted credits that we modeled, the same participant would receive an annuity of only \$21,200.<sup>40</sup>

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<sup>40</sup>We also modeled conversions to cash balance formulas with enhanced opening account balances and grandfathering provisions. See app. II for a discussion of the sensitivity analysis we performed regarding transition provisions.

**Figure 6: Comparison of Benefits From Weighted Pay Credit Formulas, Basic Cash Balance Formula, and Final Average Pay Formula**



Note: Results are for a 45-year-old worker with 20 years of service. The pay credits in the more generous weighted formula ranged from 3 to 11 percent. The pay credits in the less generous formula ranged from 3 to 8 percent. We also modeled formulas with pay credits that ranged from 4 to 7 percent and 3 to 10 percent.

## Participants Often Receive Inadequate Information About Plan Changes

Current disclosure requirements provide only minimum guidelines that firms must follow on the type of information they provide participants about plan changes. We found wide variation in the type and amounts of information workers receive about plan changes. In many instances of conversions to cash balance plans, sponsors did not ensure that participants received sufficient information about plan changes that can reduce future benefit accruals.

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## Notice About Plan Changes May Not Adequately Inform Participants

Under current disclosure requirements, firms may have broad flexibility in the type of information they provide participants about plan changes. ERISA specifically requires that plan sponsors notify plan participants about any plan amendment that may significantly reduce the rate of future benefit accruals for some or all employees. Employers must provide the notice no later than 15 days before the implementation of an amendment.<sup>41</sup> Notification must be in writing and must state that the plan formula has been amended as well as give the effective date of the amendment. However, the law does not specifically require that plan sponsors articulate the nature of the formula amendment or identify groups of participants who may be adversely affected. Also, no notice is specifically required for reductions to early retirement benefits. Consequently, the communications provided to employees typically vary from general statements about plan changes to specific examples of how conversions to cash balance plans might affect workers of different ages and tenure.

We found significant variation in the information provided to participants about conversions to cash balance plans. Some firms went beyond the minimum disclosure requirements and provided extensive information to participants about how the conversion to a cash balance plan could affect their benefits. Firms that provided extensive communications to plan participants often engaged in a communications process with them, sometimes a year or longer, before conversion. Disclosure included briefing participants and issuing them brochures or newsletters, benefit calculators to compare benefits under the traditional and cash balance formulas, and individualized benefit statements. Several plan sponsors we spoke with indicated that the firms designed a communications process to provide information to and give opportunity for dialogue with plan participants at regular intervals before conversion. The communications began with very basic information about a firm's decision to convert to a cash balance plan and culminated with information about how the conversion might affect various groups of employees. One firm provided its employees the following notice about reductions in future accruals:

"Generally, the change we are making results in a reduction in the rate of future pension accruals. There will be no change in the basic pension formula for employees who are 'grandfathered.' Reductions for those who are well into their working careers but do not

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<sup>41</sup>In contrast, if employers intend to terminate a pension plan, they must notify everyone affected, including current participants, between 60 and 90 days before the proposed termination date.

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meet the grandfathering criteria will be lessened to some extent through special transition provisions. There may be large reductions in the rate of future pension accruals compared to the current pension plan for those who are furthest from retirement today.”

Other firms, however, satisfied the notice requirement concerning reductions in future accruals by providing participants with the minimum amount of information necessary to satisfy the specific ERISA requirement—namely, a summary of the plan amendment detailing the cash balance formula or a copy of the actual plan amendment. It is likely that the technical language contained in the plan amendment is difficult to understand and does not adequately convey changes made to the plan or identify types of employees who might be adversely affected.

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## Summary Plan Descriptions Can Provide Additional Information

Summary plan descriptions (SPD) are another means of providing information to employees about how conversions to cash balance plans can affect their pension benefits. New employees must receive a copy of the plan sponsor’s latest SPD 90 days after becoming covered by the plan. These descriptions are used to convey basic information about company pension benefits in clear, nontechnical language.

We reviewed many of the SPDs of cash balance plans identified in our survey and found a range in the quality of information they contained. Some SPDs provided a clear statement regarding the nature of the cash balance plan, indicating that the accounts were hypothetical and that employees did not own the assets in the accounts. For example, one SPD we reviewed included the following description:

“Because your pension benefit grows as an account balance, it is referred to as a cash balance type plan. Although your benefit is referred to as an ‘account,’ no assets or funds are set aside to fund an individual account in your name. Rather plan assets are held and managed in a single retirement trust.”

However, many of the SPDs we reviewed did not clearly explain that the cash balance accounts were hypothetical and that participants did not actually own individual accounts as in a 401(k) plan. About half of the cash balance plan SPDs we analyzed did not make any reference to the hypothetical nature of cash balance plan accounts. Not stating that the accounts are hypothetical or making claims that the cash balance accounts are similar to 401(k) plan accounts can prevent plan participants from understanding how cash balance plans work and the benefits they are entitled to receive. For example, without making reference to the hypothetical nature of cash balance accounts, one firm described its cash

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balance plan as a “personal retirement account” that grows on the basis of compensation credits and interest credits. Other summary plan descriptions or related plan information described cash balance plans in a similar manner, including providing illustrations of the growth in cash balance accounts alongside of examples of how 401(k) plan accounts can increase over time without explicitly explaining that participants did not “own” the cash balance accounts and did not control how the assets are invested.

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## Conclusions

Cash balance and similar hybrid plans have become more common among large firms than they were in the 1980s and point to a desire firms have to offer pension benefits that more closely complement their business strategies. In particular, conversions to cash balance plans allow firms to redistribute pension benefits among different groups of employees. This redistribution can be advantageous for young or mobile workers but can have adverse effects for older workers. Recognizing that some workers face reductions in future benefits or periods of no new benefit accruals, many firms have adopted transition provisions to mitigate the loss of expected benefits for some of their workers. The trend toward cash balance plans and other hybrid plan designs underscores the challenge of developing a pension system that provides retirement income for a broad complement of workers while ensuring benefit equity among various groups of workers.

The increased use of cash balance plans highlights the growing mismatch between the continuing innovation in pension plan design and a regulatory framework that is much slower to adapt to new designs. Although cash balance plans legally are defined benefit plans, they do not fit neatly within the current defined benefit plan regulatory structure. Consequently, this mismatch has now resulted in considerable regulatory uncertainty for employers, as well as litigation with potentially significant financial liabilities and contradictory court decisions. For many workers, this mismatch has also raised questions about the security of their retirement income and the rights they have to their pension benefits. As a result, additional protections are needed to address issues raised by the emergence of cash balance and similar hybrid plan designs. For example, requirements for setting opening account balances could protect plan participants, especially older workers, from experiencing periods of no new pension accruals after conversion while other workers continue to earn benefits.



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Another major issue in the debate over cash balance plan conversions has been the clarity and usefulness of information provided to employees about changes in their retirement benefits. We found considerable variation in the clarity and comprehensiveness of the information disclosed to employees affected by past plan conversions. At a minimum, employees should have clear, understandable information about pension plan modifications that will help them make intelligent employment and retirement savings decisions. Such information is especially important when workers must choose whether to remain under a traditional formula or participate in a cash balance plan. Participants could benefit from more timely notice of plan changes that can reduce future benefit accruals. Such an extended notification period would be comparable to the advance notice provided in the event of a proposed pension plan termination and would provide participants more time to evaluate plan changes and the potential effects on their benefits. The notice could also provide employees a clear, written description about changes to the plan and which groups of participants might have lower future benefit accruals under the amended plan.

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## Matters for Congressional Consideration

To improve disclosure related to pension plans, the Congress should consider amending ERISA so that it specifically requires firms to provide participants with more timely information, in plain language, about plan changes that can reduce future pension benefits. Such notice could be provided to employees no less than 90 days before the effective date of the plan amendment rather than the current 15 days. This notice requirement could also be expanded to include instances in which a plan amendment will significantly reduce or eliminate early retirement benefits.

To better ensure continuity of pension accruals for workers affected by conversions to cash balance formulas, the Congress should consider amending the Internal Revenue Code and ERISA to establish requirements to prevent firms that convert to cash balance plans from creating a wearaway period at conversion on the value of prior accrued benefits on an annuity and lump sum basis.

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## Recommendations

To address the continuing regulatory uncertainty concerning cash balance and other hybrid plan designs, the relevant federal agencies should take steps to clarify how these plan designs will be treated under current pension law. Specifically, we recommend that the Secretary of the Treasury direct the Commissioner of Internal Revenue to continue the effective

moratorium on determination letters approving conversions to cash balance or similar hybrid plan designs until IRS acts on our recommendations by promulgating regulations addressing key issues concerning these plans.

We also recommend that in clarifying the regulatory treatment of cash balance and similar hybrid plans, the Secretary direct the Commissioner of Internal Revenue to

- develop a regulatory framework that—where appropriate on issues under its authority, including coordination with other appropriate agencies such as EEOC—provides requirements on key issues for cash balance and similar formulas, recognizing the hybrid nature of these new plan designs, and
- define the accrued benefit provided by cash balance plans under the framework for hybrid pension plans.

We also recommend that the Secretary of Labor direct the Assistant Secretary of the Pension and Welfare Benefits Administration, under authority as provided by ERISA, to amend the disclosure requirements for summary plan descriptions and summaries of material modifications to plans to

- include a clear statement regarding the hypothetical nature of cash balance accounts, including that employees do not own the accounts, and how such accounts differ from any defined contribution accounts an employer may also provide and
- clearly identify the potential of the conversion to reduce future pension accruals and early retirement benefits and under what circumstances such reductions are likely to occur.

The Secretary of Labor should also direct the Assistant Secretary of the Pension and Welfare Benefits Administration to develop standardized language that firms may use to meet the amended disclosure requirements.

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## Agency Comments

We provided EEOC, IRS, Labor, and Treasury the opportunity to comment on a draft of this report. Treasury generally agreed with our findings, conclusions, and recommendations and agreed that legislation like that proposed in our matters for congressional consideration is needed. Treasury's comments are included in appendix IV. In its comments, IRS concurred with Treasury. In their comments, EEOC and Labor also

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generally agreed with the report's findings, conclusions, and recommendations. Treasury and Labor said that they are currently considering the appropriate course of action to take in response to our recommendations.

Treasury and Labor also provided technical comments, which we incorporated where appropriate, including clarification of our recommendations.

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We are sending copies of this report to the Honorable Charles E. Grassley, Chairman, Senate Special Committee on Aging; the Honorable Lawrence H. Summers, Secretary of the Treasury; the Honorable Alexis M. Herman, Secretary of Labor; the Honorable Ida L. Castro, Chairwoman of the Equal Employment Opportunity Commission; the Honorable Charles O. Rossotti, Commissioner of Internal Revenue; and others who are interested. We will also make copies available to others on request.

If you or your staffs have any questions concerning this report, please call me on (202) 512-7215. Major contributors to this report are Charles A. Jeszeck, George A. Scott, Daniel F. Alspaugh, Jeremy F. Citro, Andrew M. Davenport, Lise L. Levie, and Roger J. Thomas.



Barbara D. Bovbjerg  
Associate Director, Education, Workforce,  
and Income Security Issues

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# Scope and Methodology

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## Survey of 1999 Fortune 1000 Companies

To determine the prevalence of cash balance plans among large employers and to describe the major features of cash balance plans adopted by large employers, we conducted a telephone survey of 420 employers listed among the 1999 Fortune 1000. We selected the firms randomly. We obtained responses from 409 firms, or about 97 percent of the companies we sampled.

Of the 409 firms that responded to our survey, 19 percent reported sponsoring a cash balance plan. Because the survey was based on random sampling with equal probabilities of selection, the sample proportion is a reasonable estimate of the total population of 1999 Fortune 1000 companies sponsoring a cash balance plan. Applying the sample proportion (19.3 percent) to the 1999 Fortune 1000 list provides an estimate of 193 1999 Fortune 1000 firms with cash balance plans as of July 2000.<sup>1</sup>

We obtained plan documents, including summary plan descriptions (SPD) from the cash balance plan sponsors we identified in the sample survey. We summarized the major features of cash balance plans sponsored by the 1999 Fortune 1000 firms we surveyed. Information extracted from plan documents provided by the cash balance plans we identified includes data on whether the plan is a new or converted plan, participation and vesting requirements, how opening balances were established, cash balance plan features, and whether transition provisions were provided.

For each variable in the data collection instrument as well as for information on plan features that we obtained from plan documents, we developed a database to compile and analyze plan data. Counts were performed to generate the frequency of occurrence for each variable in the database and particular plan features. The percentage and number of 1999 Fortune 1000 firms that sponsor cash balance plans as well as the number of participants in those plans were calculated at the 95 percent confidence level. The other statistics we report from our survey on cash balance plans represent sample statistics.

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<sup>1</sup>To calculate the population estimate from the sample proportion, the assumption is made that the population of 1999 Fortune 1000 companies not selected for the survey has the same proportion of cash balance sponsors as the number of survey respondents. Confidence intervals were computed at the 95 percent level for the number and proportion of 1999 Fortune 1000 companies sponsoring cash balance plans.

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## Interviews With Cash Balance Plan Sponsors

We conducted in-depth interviews with officials from 14 firms that sponsor cash balance or similar hybrid plans; 13 of these firms converted traditional pension plans to cash balance or pension equity plan formulas. These interviews allowed us to examine in-depth the reasons why employers converted and how plan sponsors implemented conversions to cash balance plans. We selected firms judgmentally on the basis of several criteria. Selection criteria included company industry, geographic region, and whether the company had received favorable or unfavorable press regarding its conversion. Two of the 14 companies are nonprofit organizations. Information from these interviews is included in the body of the report to provide relevant examples and context. We do not mention firm names in order to preserve confidentiality. We provided a pledge of confidentiality to firms that provided us proprietary information.

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## Comparative Design Scenarios

To analyze how traditional final average pay formulas and cash balance formulas determine the amount of pension benefits, we calculated comparative design scenarios that show how benefits accrue over a worker's career. For these scenarios, we assume that a hypothetical worker spends an entire career with a sponsor of a traditional final average pay plan or cash balance plan to illustrate how traditional final average pay formulas and basic cash balance plans provide pension benefits.<sup>2</sup> Because these scenarios are not intended to compare pension benefits received at any age or to illustrate the potential effects of conversion, we equalized annuity and lump sum benefits provided by the two formulas at age 65 the assumed normal retirement age. Our assumption of equal benefits at the normal retirement age for purposes of illustration does not mean that the two formulas in this example would provide equivalent benefits at times other than normal retirement age or would result in equivalent costs to the sponsor. The traditional final average pay formula provides an annuity commencing at age 65 based on years of service, a multiplier of 1.0 percent of pay, and the worker's average final (previous) 5 years of salary. An early retirement subsidy was not incorporated into the traditional formula for these examples. We assume that cash balance plan benefits are based on

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<sup>2</sup>We modeled lifetime participation scenarios for workers commencing employment at ages 25, 35, 45, and 55. Worker income at age of employment is based on median incomes for full-time workers who reported participation in a pension or retirement plan by age computed from analyses of the March 1999 Demographic Supplement to the Current Population Survey.

5.99 percent interest credits (rate of interest on the 30-year Treasury note in December 1997) to employee “accounts.” To equalize pension benefits at age 65, we held the traditional formula accrual factor and the cash balance formula interest credit rate constant and solved for the cash balance plan formula’s pay credit. For example, the 25-year-old worker we modeled participates in a cash balance plan that credits 5.9 percent of pay for each year of participation.

We converted cash balance nominal account balances to annuity equivalents by projecting account balances forward to age 65 (the assumed normal retirement age) with the interest credit rate and applying an annuity conversion factor, which converts the projected balance to an annuity equivalent commencing at age 65. The annuity conversion factor consists of a discount rate (5.99 percent, or the rate on 30-year Treasuries as of December 1997) and unisex mortality assumptions from the 1983 Group Annuity Mortality table.

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# Pension Benefits Simulation Model

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We used a computer simulation model to examine the potential effects of converting to a traditional defined benefit plan with a final average pay formula to a cash balance formula on the pension benefits for individual workers of different ages and tenure. We designed this actuarial model as an Excel file in consultation with actuaries from pension-related government agencies. To conduct simulations, users must input various parameter values to specify the design of the traditional and cash balance formulas, worker characteristics at conversion, and key interest rates. The model permits considerable flexibility in plan design, particularly for cash balance formulas. This flexibility includes varying the assumptions used to determine opening account balances and the level and structure of pay and interest credits. We conducted nearly 100 simulations reflecting various features of employer-sponsored traditional and cash balance pension plans. We specified parameter values for the scenarios discussed in the report that we based on our comprehensive review of actual cash balance plan conversions. This review included industry-specific data, our survey of Fortune 1000 firms, in-depth interviews with firms that converted to cash balance plans, and interviews with knowledgeable actuaries, consultants, and government officials.

To analyze the potential effects of conversion from a traditional final average pay formula to a cash balance formula, the model computes benefit streams in dollars for annuity and lump sum benefits provided by both formulas. The model computes these streams provided by both formulas annually up to the plan's normal retirement age of 65. This allows us to compare annuity and lump sum benefits after conversion for individual workers for any age at the time of conversion until age 65. To understand the potential effects on workers' pension benefits that result from conversion to a cash balance formula, both annuity and lump sum benefit streams must be calculated. By computing benefit streams, we are able to compare benefits provided by the two formulas at any point in time upon conversion until retirement.<sup>1</sup>

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<sup>1</sup>Industry studies that examine the potential effects of conversions to cash balance formulas also model examples to provide illustrative analysis. These studies compute benefit streams to allow the comparison of pension benefits that workers receive under various conversion scenarios. For example, see *The Unfolding of a Predictable Surprise: A Comprehensive Analysis of the Shift From Traditional Pensions to Hybrid Plans* (Watson Wyatt Worldwide, 1999) and Larry Sher, "A Workable Alternative to Defined Benefit Plans," *Contingencies* (Sept.-Oct. 1999), pp. 4-7.

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## Model Specification of a Traditional Defined Benefit Formula

In seeking to compare how workers fare in the event of a conversion to a cash balance formula, we use a benefit formula to represent a traditional defined benefit plan in place before conversion. The traditional defined benefit formula we model is based on a multiplier times the worker's completed years of service times the average of the worker's last 5 years' earnings. At any given time, this formula provides a deferred annuity benefit (or a series of annual payments) that commences at the plan's normal retirement age, defined as age 65 in our model.

We chose to simulate benefits provided by a traditional defined benefit plan using a final average pay formula because most participants in defined benefit plans are covered by plans with a final average pay formula. According to 1997 data from the Bureau of Labor Statistics (BLS) on defined benefit plans sponsored by large and medium-size firms, 56 percent of covered employees participated in a plan based on terminal earnings or earnings during a specified number of years at the end of a worker's career. The BLS study indicates that 78 percent of employees covered by a terminal earnings formula in 1997 received pension benefits based on a 5-year averaging period. Also, a recent study by PricewaterhouseCoopers found that 78 of the 100 plan conversions it surveyed provided pension benefits based on a final average pay formula prior to conversion. Annuity benefits are calculated by the model because defined benefit pension law and regulations require all defined benefit plans to express accrued benefits in the form of an annual payment commencing at normal retirement age.<sup>2</sup> Traditional formula benefits are computed from the age of initial employment until the normal retirement age.

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## Model Specification of the Cash Balance Plan Formulas

Cash balance plans are defined benefit plans that provide participants with hypothetical accounts. The balances in these accounts are determined by a plan-specified formula that specifies a percentage of annual pay for each employee and pays interest on this amount at a rate or index of rates. In the event of conversion, plan sponsors generally establish opening balances by determining the present value of accrued benefits under the prior benefit formula at the time of conversion.

The model computes benefits provided by cash balance formulas after a conversion from the traditional defined benefit formula to a cash balance

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<sup>2</sup>26 U.S.C. 411(a)(7).



account formula. The cash balance formula provides hypothetical account balances and determines benefits on the basis of pay credits and interest credits contributed to workers' accounts. To facilitate a comparison, we computed the benefits provided by the cash balance formulas we model from a worker's age at conversion until the plan's normal retirement age.

Conversion from the traditional final average pay formula to the cash balance formula is based on computing the present value of the accrued benefit provided under the final average pay formula at conversion. Our survey of firms on the 1999 Fortune 1000 list indicates that plan sponsors who converted to a cash balance formula generally established opening account balances by determining the present value of prior accrued benefits. Mortality assumptions based on unisex 1983 Group Annuity Mortality rates and an interest rate prescribed by Internal Revenue Code (IRC) section 417(e) are used to determine the present value of the prior accrued benefit (annuity provided by the old formula) payable at the time of conversion.<sup>3</sup> The conversion to the cash balance formula is assumed to have been operational on January 1, 1998.

Our survey of 1999 Fortune 1000 firms indicates that there is a wide variety of cash balance plan designs among the firms that sponsor these plans. Thus, the simulation model does not seek to model any "typical" cash balance plan but permits analysis of a broad range of cash balance plan features common among actual plans. Because there is a variety of cash balance plans, we modeled numerous cash balance formulas including basic cash balance formulas that provide level annual pay credits to workers regardless of age and service as well as more complex cash balance formulas with age-weighted pay credits or enhanced opening balances. All the cash balance formulas we model are based on common features found in employer-sponsored cash balance plans. All simulations are illustrative, the model is not used to simulate pension benefits provided by any particular employer's plan, and the model does not simulate pension benefits for any particular employer's workforce. Instead, simulation results help explain how cash balance formulas provide pension benefits compared with traditional defined benefit final average pay formulas.

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<sup>3</sup>Converting the prior accrued benefit to a lump sum distribution in accordance with IRC section 417(e) ensures that a lump sum wearaway period is not created at conversion.

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## Underlying Assumptions for All Simulations

All the simulations we report, as well as those conducted in our sensitivity analyses, require a number of simplifying assumptions. We do not represent the simulations we undertook to be typical; rather, they illustrate how workers might fare under conversion to a cash balance formula. The model calculates a pension benefit stream for each formula, which permits analysis of the potential effects of conversion on the accrued pension benefits workers receive. Deferred annuity and lump sum benefits the two formulas provide can be compared at any age from conversion until retirement. Thus, users can compare preretirement lump sum distributions that workers receive at all possible ages of departure from the firm at or after conversion. Users can also compare annuity benefits received at retirement.

The purpose of the model is to focus on the comparative effects on benefits for workers in the event of a conversion to a cash balance formula. The model does not simulate benefit portability scenarios based on turnover data or examine pension benefits based on participation in multiple final average pay or cash balance formulas. In reality, many individuals may have very discontinuous work histories and may work a number of different places before retirement. Except where specified in the text, we did not include early retirement subsidies in the traditional formula that we modeled, and in all cases, neither the traditional nor the cash balance formula is integrated with Social Security. The model does not incorporate other possible changes to a worker's total benefit and compensation package that might accompany conversion to a cash balance formula (for example, the addition of a 401(k) plan or an increase in an employer's match to an existing 401(k) plan). Because the model does not allow users to model age-based salary increases, we used BLS Economic Cost Index data to compute an average wage and earnings growth factor to reflect 1990-98 wage growth among private sector workers. Interest rates, including the 417(e) rate, the conversion rate, and the annuity conversion factor (rate) used in the computation of pension benefits, are typically fixed throughout the modeling period, which begins at the age of employment and extends until retirement at age 65.

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## Specification of Model Parameters

The model operates through parameters for which users can select and input values. The parameters allow the manipulation of different factors, which then influence the model's results. Our initial simulations for workers of various ages and tenure constitute a baseline scenario that models conversion from a traditional final average pay formula to a basic

cash balance formula. All other simulations use sensitivity analysis, or the modification of one or more parameter values used in the baseline simulations, to analyze the potential effects of different types of cash balance formula design assumptions on workers' pension benefits after conversion.

Parameters that the user can input values for are grouped into three broad categories.

1. Worker characteristics:

- worker age at conversion,
- worker salary at conversion,
- worker tenure (completed years of service) at conversion, and
- worker salary increase factor.

2. Pension formula parameters:

- traditional formula multiplier (a percentage),
- cash balance formula interest credit rate,
- cash balance formula pay credit rate (level percentage or age-weighted pay credits),
- an extra amount to a worker's opening account balance (possible to add a flat dollar amount chosen by the user to opening account balances), and
- preretirement mortality factor (which is used for all simulations and each pension benefit calculation in simulations requiring mortality factors).

3. Interest rate parameters:

- 417(e) rate (which is always the plan-specified 30-year Treasury rate and must be used to calculate actuarial equivalents to the accrued benefits (deferred annuities) provided by defined benefit plans),<sup>4</sup>
- conversion rate (converts the prior accrued benefit to a lump sum value, which is used as the worker's opening account balance), and

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<sup>4</sup>According to regulations implementing changes to IRC section 417(e) as required by the Retirement Protection Act of 1994, defined benefit plan sponsors have some flexibility in selecting the 30-year Treasury rate they must use to calculate the lump sum value of accrued benefits.

- annuity conversion rate (converts projected cash balance accounts to annuity equivalents).

## Assumptions of the Baseline Simulations

To establish a baseline from which to examine the potential effects of conversions to different types of cash balance formula design parameters and changes to other parameters such as interest rates, we modeled the conversion of a final average pay formula to a basic cash balance formula. Modeling conversion to a basic cash balance formula enabled us to demonstrate what can happen to the pension benefits of individual workers when a plan sponsor changes from a final average pay formula to a cash balance formula. (See table 5.)

**Table 5: Assumptions for the Baseline Simulations We Report**

Factor	Assumption
Traditional final average pay formula	Based on 1.25 multiplier times years of service times final average 5 years' salary (high 5)
Cash balance formula	"Basic" formula design based on 5 percent level pay credits and 5.63 percent interest credits (1997 annual yield on 1-year Treasury bonds) contributed to worker accounts
Worker salary at conversion	Based on analysis of March 1999 Current Population Survey data by age and gender for full-time workers who participated in a pension plan
Annual salary increase	3.4 percent, based on analysis of BLS Economic Cost Index data
Mortality factors	1983 Group Annuity Mortality table unisex rates
Conversion rate <sup>a</sup>	Converts prior accrued benefits, or annuities, to opening account balances
Plan-specified discount rate	Discounts annuities to present value: 5.99 percent, or the rate of return on 30-year Treasury bonds in December 1997
Annuity conversion rate	Converts cash balance accounts to age 65 annuity equivalents

<sup>a</sup>The value we selected for the conversion rate in our baseline scenario established opening account balances as the present value of prior accrued benefits in accordance with IRC 417(e)—governing the determination of lump sum distributions from defined benefit plans. Unless we note otherwise in the text, all simulations we modeled converted prior accrued benefits using this rate.

The parameter values we selected for our baseline simulations, including the traditional and cash balance formula parameters, reflect common

features and factors found among actual plan designs. We selected all the assumptions used to specify the formula parameters for the traditional final average pay formulas and basic cash balance formulas we model on the basis of our consultation with knowledgeable consultants and actuaries.

- *The traditional final average pay formula accrual factor.* We selected 1.25, which is below the average accrual factor of 1.48 for final average pay plans BLS reported in its 1997 survey of large and medium-sized defined benefit plan sponsors.
- *Pay credits.* The level pay credit of 5 percent we selected is based on our review of level pay credit rates that actual cash balance plans provide and our consultations with actuaries. Our survey of 1999 Fortune 1000 firms indicates that about 35 percent of cash balance sponsors use a level pay credit in their formulas. According to a recent PricewaterhouseCoopers study, 28 of 100 sponsors surveyed that converted to a cash balance formula use a level pay credit, and the median rate is 4.5 percent.
- *Interest credit rates.* The interest credit rates we assume in our simulations are common among actual cash balance plans. The majority of cash balance plan sponsors we identified in our survey of 1999 Fortune 1000 firms use a rate tied to a Treasury security, such as the rate on the 30-year or the 1-year Treasury bond, to credit interest to participants' hypothetical accounts. According to PricewaterhouseCoopers, the rate of return on 1-year Treasury bonds is the most commonly used rate (40 of 100 cash balance plans) to credit interest to participant accounts.
- *Nominal account balances.* The cash balance formulas we model are designed to provide workers who receive benefits from the plan with the nominal account balance. All simulations use an interest credit rate—the rate of return on 1-year Treasury bonds or the rate of return on 30-year Treasury bonds—from the list of rates permissible under IRS Notice 96-8 to credit worker accounts. According to IRS Notice 96-8, cash balance plan sponsors who credit interest at a rate or index equal or tied to the yield on 30-year Treasury securities may pay the nominal account balance as the benefit distribution to a vested participant. The selection of 1-year and 30-year Treasury rates as the interest credits rate for the cash balance formulas we model is designed not to produce “whipsaw” effects at conversion or any time after conversion to the plan's normal retirement age.
- *Mortality table for annuity calculation.* For all simulations, we use unisex mortality rates from the 1983 Group Annuity Mortality table. Unisex mortality factors from this table are required by law to be used

when calculating minimum lump sum distributions payable from defined benefit plans because the 1983 Group Annuity Mortality table is the current “prevailing commissioners’ standard table.”<sup>5</sup> Our use of the rate of return on 30-year Treasuries is also consistent with mandatory IRC section 417(e) requirements for calculating lump sum distributions from defined benefit plans. Knowledgeable actuaries with whom we spoke indicated that using the rate of return on 30-year Treasuries and 1983 Group Annuity Mortality unisex mortality factors is appropriate for other calculations requiring the use of mortality factors and an interest rate. Therefore, we use these assumptions to calculate the present value of prior accrued benefits to establish opening account balances and convert nominal cash balance accounts to age 65 annuity equivalents. Using the rate of return on 30-year Treasury bonds and 1983 Group Annuity Mortality unisex mortality factors also assured us that we did not create a lump sum wearaway upon conversion by establishing opening account balances at less than the present value of prior accrued benefits.<sup>6</sup>

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## Hypothetical Worker Assumptions

To compare how traditional and cash balance formulas provide pension benefits and to assess the potential effects of conversion to a cash balance formula on pension benefits of different workers, the user can select values for worker age, salary, and tenure at conversion. Worker age represents how old a worker is at the time of conversion to the cash balance formula. We modeled workers at ages 30, 35, 40, 45, 50, and 55 at conversion to examine the potential effects of conversion on younger and older workers. The values selected for worker salary and tenure variables represent worker salary and years of completed service at conversion.

The worker profiles assume that employment began at age 25 for each worker and that the youngest worker we modeled completed 5 years of service by the time of conversion. Salaries at conversion are based on analyses of earnings and wage data from the Demographic Supplement to the March 1999 Current Population Survey for full-time workers who

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<sup>5</sup>26 C.F.R. 1.417(e).

<sup>6</sup>For the majority of simulations we performed, we did not create a lump sum wearaway at conversion. Unless we note otherwise, we established opening account balances, in accordance with IRC section 417(e), as amounts equal to the minimum lump sum distribution of prior accrued benefits that workers would be entitled to receive upon separation at conversion.

reported participation in their firm's pension or retirement plan by age and gender. We used the Current Population Survey to compute earnings figures because it is the source of official government income statistics published by the Bureau of the Census. All salary values are median values for workers at the specific ages modeled.

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### Analyzing the Potential Effects of Conversion on Worker Pension Benefits

Because cash balance plans are designed to provide lump sum benefits but must also provide annuity benefits, a complete examination of the potential effects of conversion on the pension benefits of workers of different ages and tenure depends on analyzing the potential effects on both annuity and lump sum benefits. The model we used simulates both annuity and lump sum benefit streams provided by each formula.<sup>7</sup>

1. Annuity. The annuity provided by the traditional formula and the "annuity equivalent" to the cash balance account (nominal cash balance accounts converted to annuities at age 65).
2. Lump sum. The lump sum value of the accrued benefit from the traditional formula—minimum distribution in accordance with IRC section 417(e)—and the nominal cash balance account value, based on the establishment of an opening account balance at conversion. Lump sum values represent age-specific present values and are reported in nominal dollars.<sup>8</sup>

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### Annuity Comparison

We examine annuities because cash balance plans legally are defined benefit plans and must provide an annual benefit commencing at normal retirement age, usually in the form of an annuity.<sup>9</sup> The model computes two annuity benefit streams for the traditional formula. One stream shows the traditional formula annuity from the initial age of initial employment up to the age at conversion, with the annuity amount frozen at conversion until

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<sup>7</sup>All pension benefits computed by the model are beginning-of-year benefits.

<sup>8</sup>Lump sum values represent the "present value" of the pension benefit at a specific age (or nominal value). That is, the lump sum value of a traditional formula annuity benefit for a worker at age 35 is the present value of the worker's accrued benefit at that age. Also, the cash balance account a worker has accrued at age 35 is the "present value" of the cash balance formula's benefit at age 35. Thus, cash balance account balances represent the present value of accrued pension benefits when the balance is paid out.

<sup>9</sup>26 U.S.C. 414(j) and 26 U.S.C. 411(a)(7).

normal retirement age. The other stream shows the traditional formula annuity from the age of initial employment to the plan's normal retirement age.

For each year upon conversion, the model converts beginning-of-year nominal account balances to "annuity equivalents." To calculate the annuity equivalent to the cash balance account, the model incorporates the methodology recommended in IRS Notice 96-8. We use the methodology prescribed by Notice 96-8 because defined benefit plans must express benefits as a function of the plan's normal retirement age, whether as a series of annual payments or the actuarial equivalent of normal retirement benefits.<sup>10</sup> According to IRS Notice 96-8, nominal account balances are projected to normal retirement age using interest credits specified by the plan. The projected balance is converted into a deferred age 65 annuity. The "annuity conversion" is calculated in accordance with the mortality factors and interest rate prescribed by Internal Revenue Code section 417(e).<sup>11</sup> The annuity equivalent to the cash balance account determined by this methodology represents an annual benefit beginning at the plan-specified normal retirement age. The cash balance account annuity equivalent is directly comparable to the annuity provided under the final average pay formula.

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## Lump Sum Comparison

To compare the lump sum benefits provided by the two formulas, the model calculates the age-specific present value (lump sum) of the annuity produced by the final average pay formula. The age-specific present value of accrued benefits that defined benefit plans provide must be determined in accordance with IRC section 417(e). Under this requirement, annuity benefits are to be discounted to an actuarially equivalent amount, or a lump

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<sup>10</sup>26 U.S.C. 411(a)(7) and 411(c)(3).

<sup>11</sup>For all calculations that convert a deferred annuity to a lump sum value, the mortality factors used are the unisex mortality factors from the 1983 Group Annuity Mortality table. This table is the current IRS Commissioner's standard table that IRC section 417(e) requires be used in determining the present value of accrued benefits when defined benefit sponsors pay out lump sum distributions to vested participants. Unisex mortality factors used from 1983 Group Annuity Mortality tables in conjunction with an interest rate, to establish opening account balances, convert projected cash balance accounts to annuity equivalents, and convert deferred annuities to lump sum values. For all simulations, the probability of surviving to retirement age and the probability of surviving each year beyond retirement age (once retirement age is attained) are incorporated into all the aforementioned pension benefit calculations.



sum distribution, that equals the present value of the annuity generated by the formula. The model incorporates the mortality factors and interest rate mandated by IRC section 417(e) to determine the present value of the traditional formula annuity benefit. The lump sum value of the traditional formula annuity benefit is the legal minimum payment that defined benefit plan sponsors can provide to vested participants who can receive benefits in a form other than an annuity commencing at retirement (if permissible under the plan). The model permits the calculation of lump sum values for the two annuity benefit streams produced by the final average pay formula. That is, the model calculates lump sum values for the final average pay formula annuity stream frozen at conversion until the normal retirement age, and it calculates lump sum values for the final average pay formula annuity stream produced from the age of initial employment out to the normal retirement age.

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### Implications of the Absence of Early Retirement Benefits

Except in the case in which where we illustrate the wearaway of annuity benefits that can occur upon conversion to a cash balance formula, we did not simulate pension benefits provided by traditional formulas with early retirement benefit provisions. The majority of traditional defined benefit plans do include some form of early retirement benefit, and many include subsidized early retirement benefits.<sup>12</sup> Early retirement benefits are designed into defined benefit pension plans by adjusting the accrued benefit (the deferred age 65 annuity determined by the plan formula) as of the date of early retirement to reflect the receipt of benefits at an earlier age and for a longer period of time. Adjustments to normal retirement annuities are based on early retirement factors or actuarial factors combining a set of mortality assumptions and an interest rate. Early retirement benefits can reflect full actuarial reductions, which discount the accrued normal retirement benefit to the date of early retirement. Early retirement benefits generated in this manner are termed “actuarially reduced” benefits. Early retirement benefits can also be subsidized or can reflect adjustments that do not actuarially reduce benefits to fully reflect receipt at the early retirement age. That is, defined benefit plans can stipulate a set of more favorable early retirement factors that reduce benefits on an actuarially partial basis (benefits are worth more at the early retirement age than if reduced on a purely actuarial basis).

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<sup>12</sup>According to BLS’ 1997 Employee Benefits Survey, 95 percent of employees who worked at a firm with 100 or more employees and were covered by a defined benefit plan participated in a plan that included an early retirement benefit in 1997.

The absence of early retirement benefits in the traditional formulas we model has no effect on how the cash balance formulas we model provide benefits after conversion. The benefit stream and rate of benefit accrual provided by cash balance formulas after conversion are not altered by the presence or absence of early retirement subsidies in a final average pay formula before conversion. According to leading actuaries we spoke with, early retirement subsidies can be eliminated as a result of conversions to cash balance formulas but this does not affect how benefits accrue under cash balance formulas.

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### Implications of Not Integrating Formulas With Social Security

Many defined benefit plan participants are covered by a plan that integrates benefits with Social Security.<sup>13</sup> The model results would most likely be affected by integrating one or both of the pension benefit formulas simulated with Social Security benefits, but it is not possible to gauge whether the results would be more favorable or less favorable to the cash balance formula. Also, the earning levels of individual workers influence whether and how integration affects total pension benefits.

There are two methods for integrating employer-sponsored defined benefit pensions with Social Security. The offset method reduces employee pension benefits as calculated by the plan formula by a portion of primary Social Security payments, or by the “offset” amount. Offset amounts may not exceed limits specified by federal law. The excess method involves adding two layers of benefits to determine the participant’s total pension benefit. The excess method applies the plan formula to determine the benefit for participant earnings up to an “integration level,” such as the Social Security taxable wage base or a specific fixed-dollar threshold. A second layer of benefits is computed at a higher rate for earnings above the integration level.<sup>14</sup> Designing Social Security integration into our model could be more or less favorable to the cash balance formula, depending on whether integration was built into either the traditional formula or cash balance formula (or both) and the integration method used.

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<sup>13</sup>As we discuss above, according to BLS’ 1997 Employee Benefits Survey, 49 percent of employees who worked at a firm with 100 or more employees and were covered by a defined benefit plan in 1997 participated in a plan that was integrated with Social Security.

<sup>14</sup>See Dan McGill and others, *Fundamentals of Private Pensions*, 7th ed. (Philadelphia: University of Pennsylvania Press, 1996), pp. 324-31.

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## Sensitivity Analysis

To enhance our analysis of the potential effects of conversion to cash balance formulas on the pension benefits, we conducted numerous sensitivity analyses by changing the cash balance formula design parameters. For example, we simulated an additional conversion scenario to an alternative basic cash balance plan. This alternative scenario was based on conversion from a traditional final average pay formula with a 1.25 multiplier to a cash balance formula that provides flat 6 percent pay credits and 5.99 percent interest based on the December 1997 rate of return on 30-year Treasury securities. We also modeled conversion to five cash balance formulas with age-weighted pay credits that we selected from among cash balance plan sponsors we identified in our survey of Fortune 1000 firms. For example, we modeled conversion to a cash balance formula with age-weighted pay credits ranging from 3 to 8 percent, and we modeled conversion to a cash balance formula with age-weighted pay credits from 3 to 11 percent. We also modeled examples of conversions to cash balance formulas with enhanced opening balances, enhanced opening balances and age-weighted pay credits, and grandfathering provisions. These formula design assumptions did not change our key findings.

The simulations we conducted reflect a range of features commonly found in cash balance formula designs, including conversions. We conducted a range of sensitivity analyses to assess the effects of changes to various model parameters, including cash balance formula design parameters. Parameter values for the simulations were selected on the basis of our review and analysis of actual cash balance plans sponsored by large employers, review of the literature on cash balance plans, and interviews with knowledgeable pension actuaries and consultants involved in cash balance plan designs.

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# Cash Balance Plans and Minimum Lump Sum Distributions

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IRC provides that any form of payment from a defined benefit formula other than an annuity must be the actuarial equivalent of an annuity beginning at normal retirement age.<sup>1</sup> The actuarial equivalent of an annuity commencing at normal retirement age is the present value or lump sum equivalent to the annuity benefit. IRC defines how the actuarial equivalent of a normal retirement age annuity must be determined. Specifically, IRC section 417(e)(3) stipulates that defined benefit sponsors that permit lump sum distributions must calculate distributions to departing participants by using a mandatory discount rate and a set of mortality assumptions. The mandatory discount rate is the rate of interest on 30-year Treasury bonds, and the current mortality table is the prevailing IRS Commissioner's table used to determine reserves for group annuity contracts—the 1983 Group Annuity Mortality unisex table.<sup>2</sup> To determine the lump sum distribution of a participant's accrued benefit under a traditional formula, the IRC section 417(e) methodology must be applied to the individual's accrued benefit. The actuarial present value of an annuity beginning at normal retirement age determined in accordance with federal regulations represents the minimum lump sum distribution payable under law to a departing vested employee.

Cash balance plans must pay accrued benefits as an annuity or the lump sum equivalent to a normal retirement age annuity.<sup>3</sup> Cash balance plans that provide preretirement lump sum distributions must do so in accordance with federal regulations governing defined benefit plans. Hypothetical account balances are proxies for the lump sum equivalent of participants' accrued benefits. However, because cash balance plans do not initially express benefits as annuities commencing at normal retirement age like most other traditional defined benefit plans do, hypothetical account balances paid as lump sum distributions must be calculated as the actuarial equivalent of deferred annuities. This calculation ensures that cash balance plan sponsors pay separating employees the minimum benefit they are entitled to under the law.

Under a cash balance plan, the hypothetical account balance represented to the participant may not equal the minimum lump sum distribution the participant is entitled to receive. The extent to which the hypothetical

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<sup>1</sup>26 U.S.C. 411(c)(3) and 29 U.S.C. 1054(c)(3).

<sup>2</sup>26 C.F.R. 1.417(e)-1.

<sup>3</sup>26 U.S.C. 411(a)(7), 26 U.S.C. 411(c)(3), and 29 U.S.C. 1054(c)(3).

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**Appendix III**  
**Cash Balance Plans and Minimum Lump Sum**  
**Distributions**

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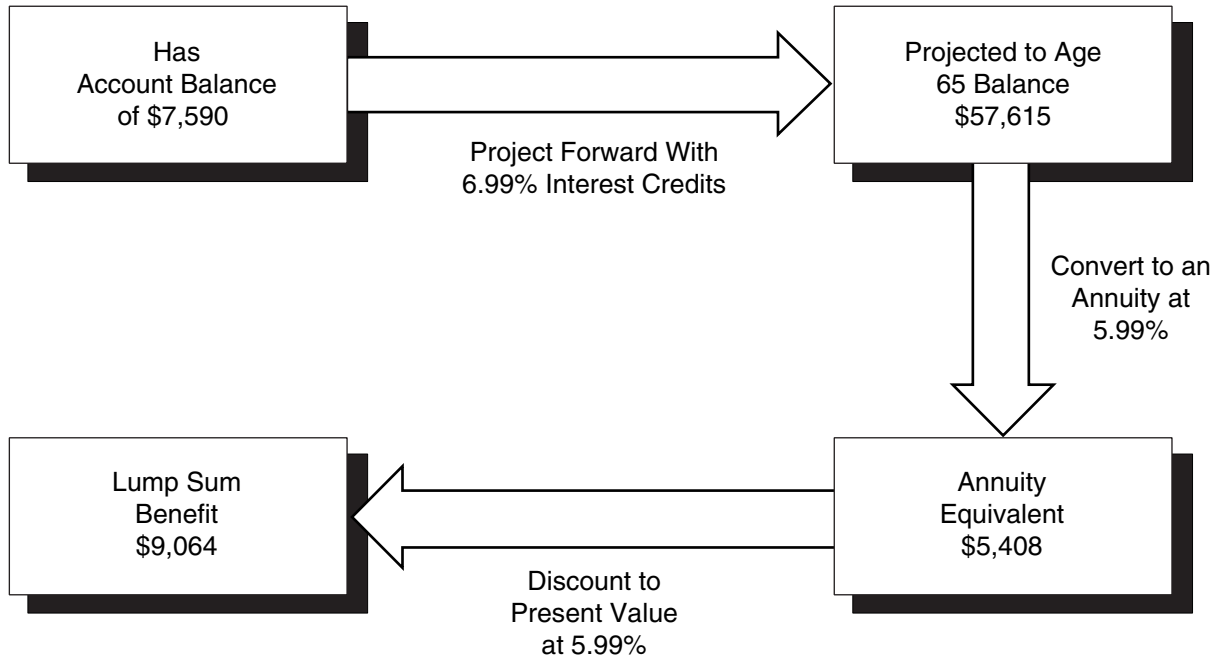
balance equals the minimum lump sum distribution payable from a defined benefit plan depends primarily on the relationship between two key interest rates—the rate at which the plan credits hypothetical earnings and the mandatory discount rate. If the plan interest credit rate exceeds the mandatory discount rate, the plan sponsor must legally pay a lump sum benefit greater than the participant’s hypothetical account balance, known as the “whipsaw” effect. Conversely, when the hypothetical account balance exceeds the minimum lump sum benefit payable, IRC does not prohibit a sponsor from paying the lesser amount.<sup>4</sup>

For example, a 35-year-old worker with a hypothetical account balance of \$7,590 may receive a lump sum payment of \$9,064 when the plan interest credit rate is 6.99 percent and the discount rate is 5.99 percent (see fig. 7).

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<sup>4</sup>However, cash balance plan sponsors have stated that they will voluntarily pay the hypothetical account balance when the hypothetical balance is larger than the minimum lump sum distribution required under law.

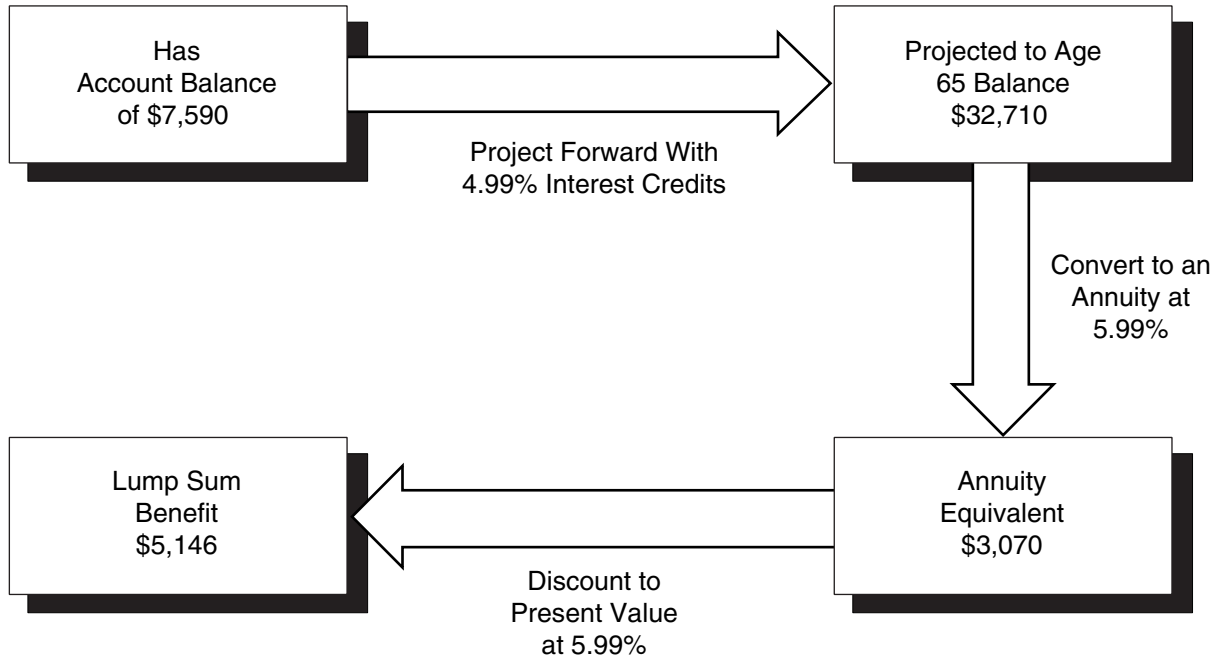
Figure 7: The Whipsaw Effect: Hypothetical Balance Is Less Than Lump Sum Benefit



Note: At conversion the 35-year-old worker has a \$40,000 salary and 10 years of service. See model assumptions in app. II.

Conversely, if the plan interest credit rate is 4.99 percent, the same employee receives a lump sum payment of \$5,146 (see fig. 8).

Figure 8: Hypothetical Balance Is Greater Than Lump Sum Benefit



Note: At conversion the 35-year-old worker has a \$40,000 salary and 10 years of service. See model assumptions in app. II.

IRS Notice 96-8 prescribes a methodology for cash balance plans to generate the actuarial equivalent of the annuity commencing at normal retirement age, which represents the minimum lump sum amount that can be paid under law. Calculating the minimum benefit amount payable under a cash balance formula requires additional steps beyond calculating the hypothetical balance. According to Notice 96-8, the participant's hypothetical account balance must be projected forward to the date of retirement, using hypothetical earnings that are based on the interest credit rate specified by the plan. Hypothetical account balances are projected forward with interest credits to the plan's normal retirement age because future interest credits are part of participants' nonforfeitable benefits. That is, Notice 96-8 requires cash balance plans to be "front-loaded"—or requires determining accrued benefits by including all future interest earned on each year's pay credit as of the date the pay credits were contributed to hypothetical accounts. Next, the projected balance is

converted into a normal retirement age annuity by using a plan-specified discount rate and mortality factors. Finally, the value of the normal retirement age annuity is discounted back to current dollars, using the mandatory discount rate—the rate specified by federal regulation that must be used to convert the benefit into an equivalent lump sum in current dollars—and mortality factors.

IRS Notice 96-8 permits cash balance plan sponsors to pay hypothetical account balances as minimum lump sum distributions to satisfy defined benefit plan rules. To help sponsors avoid the potential for whipsaw, IRS guidance allows plan sponsors to pay the hypothetical balance as the accrued benefit by adopting an index from a list of recommended indexes for crediting interest to hypothetical accounts. Plan sponsors are allowed to credit interest on the basis of the rate of return to 30-year Treasury securities or on one of several indexes tied to the 30-year Treasury bond rate.

The Notice allows a sponsor crediting hypothetical interest at a rate equal to or tied to the mandatory discount rate to pay the hypothetical balance if the sponsor uses one of the standard indexes that appear in the notice to credit hypothetical interest earnings.<sup>5</sup> As we stated above, figure 7 shows that because the 6.99 percent interest credit rate exceeds the 5.99 percent mandatory discount rate, the plan sponsor must pay a departing participant a lump sum distribution of \$9,064, which is greater than the \$7,590 hypothetical account balance. However, the sponsor in this example would be allowed to pay a lump sum distribution of \$7,590 when the interest credit rate is based on one of the standard indexes contained in the notice, even if that rate is higher than the mandatory discount rate, such as 6.61 percent.<sup>6</sup> Although it is not explicitly stated in IRS Notice 96-8, federal agency officials stated that the Notice implies that a plan adopting a standard index may project the balance forward and discount it back, using the mandatory discount rate. As a result, the hypothetical account balance and the minimum lump sum benefit would always be assumed to be equal, regardless of any differences between the rate (as determined by the specific index) used to credit hypothetical earnings and the mandatory

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<sup>5</sup>Provided that the plan also uses appropriate annuity conversion factors.

<sup>6</sup>1997 annual yield on 30-year Treasury bonds at the time of conversion.



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**Appendix III  
Cash Balance Plans and Minimum Lump Sum  
Distributions**

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discount rate. In practice, the hypothetical balance becomes the payable benefit.

# Comments From the Department of the Treasury



DEPARTMENT OF THE TREASURY  
WASHINGTON, D.C. 20220

September 28, 2000

Ms. Barbara D. Bovbjerg  
Associate Director, Education, Workforce, and Income Security Issues  
United States General Accounting Office  
Washington, D.C. 20548

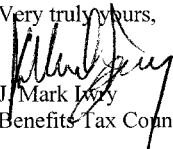
Dear Ms. Bovbjerg:

Thank you for sending to Secretary Summers a copy of your draft report entitled Private Pensions: Implications of Conversions to Cash Balance Plans. Personnel from Treasury, including the Internal Revenue Service, have reviewed the draft report, which addresses cash balance plans and the effect of conversions on workers, including the adequacy of information provided to affected participants.

The report describes the wide range of employer practices in disclosing the effect of a conversion to a cash balance plan and makes related recommendations concerning the need for legislation to improve the disclosure provided to employees when a plan is converted to a cash balance plan. As you may know, the Administration has called for legislation imposing meaningful disclosure requirements, such as the Administration's proposal introduced last year as S. 1708 by Senators Moynihan and Jeffords and as H.R. 3047 by Messrs. Matsui and Weller.

Your report contains valuable information about the "wear-aways" that can occur in cash balance conversions with respect to retirement benefits, particularly the effect on older employees, and makes recommendations concerning the need for legislation to improve protection from wear-aways in these conversions. The report also includes some information on the effect of cash balance conversions on early retirement benefits. This issue is of major importance. The concerns workers have expressed regarding cash balance conversions and the troubling reports of their adverse impacts on workers – particularly older, longer-service employees – are based in large part on cash balance wear-aways affecting early retirement benefits and their disruptive effect on workers' plans to retire early. As you may know, we have called for legislation prohibiting wear-aways in cash balance conversions, and have stated that the prohibition should apply not only to normal retirement benefits but also to the wear-away of early retirement benefits.

We appreciate the information in your report, which will be a useful addition to the current dialogue concerning cash balance plans.

Very truly yours,  
  
J. Mark Ivy  
Benefits Tax Counsel

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