

# THE PENSION

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## *Forum*

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## INTRODUCTION

Featured in this issue of *The Pension Forum* is an article that was considered too long for *Pension Section News*.

Cash-balance plans are becoming important to all pension actuaries. This is as a result of such plans being adopted by more large corporations, which have often taken the lead in plan design.

This issue is devoted to the subject through the article: "A Benefit Value Comparison of a Cash-Balance Plan with a Traditional Final Average Pay Defined-Benefit Plan."

Funding for this study was provided by the Pension Section Council in response to a request from the Cash Balance Practitioners Group (CBPG), an informed group of practitioners from consulting and law firms with an interest in the development of cash balance plans. The members of this group provide assistance to the government to help it analyze the technical aspect of these plans. Members of the Pension Section wishing to join CBPG should contact Larry Sher at 201-302-5270.

The article refers to the new SOA turnover study entitled "Pension Plan Turnover Rate Table Construction—Final Report" by Steve Kopp. You can order this study from the Books and Publications Department at the Society for \$20.00. Please contact Beverly Haynes at 847-706-3526.

An additional reference is the study note: "The Cash Balance Pension Plan" (Course P-362U Study Note) by Dennis Coleman, which we are reprinting here in its entirety. An up-to-date list of Study Notes and prices is available on the SOA web site at <http://www.soa.org> in the Publications area.

Your comments on any of the above are welcome.

*Daniel M. Arnold, FSA*  
*Editor*

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# A BENEFIT VALUE COMPARISON OF A CASH BALANCE PLAN WITH A TRADITIONAL FINAL AVERAGE PAY DEFINED-BENEFIT PLAN

BY STEVE J. KOPP AND LAWRENCE J. SHER<sup>1</sup>

## Section 1. Introduction and Summary

This study compares the distribution of benefits under a cash balance plan with those under a final average pay plan, each plan having specific design characteristics. Funding for this study was provided by the Pension Section Council of the Society of Actuaries in response to a request from the Cash Balance Practitioners Group. Our intent is to provide an example of the potentially different benefit distribution patterns of these two classes of plan design, using recent data on actual turnover and retirement from a large database.

The demographic data used in this study were recently collected by the Society of Actuaries (SOA) for a study of turnover and retirement rates, which we refer to as the "SOA turnover study." The SOA turnover study will be published in the *1997-1998 TSA Reports* under the title of "Pension Plan Turnover Rate Table Construction" by Steve Kopp. Advance copies of this report are currently available from the SOA.

The aggregate data from the SOA turnover study were used to develop and compare the value of benefits that would have been provided to plan participants during the period covered by the SOA turnover study under two types of hypothetical defined-benefit plans—a traditional final average pay plan and a cash balance plan—to examine the benefit distribution patterns under the two plan types. As a first step, we determined the benefit levels for the two plans so that the aggregate value of benefits for the employees who actually terminated or retired would be equal under the plans. We found that the following two plans provided benefits with the same aggregate benefit values for those employees who terminated or retired:

- Final average pay:  $1.0\% \times \text{final five year average pay} \times \text{years of service}$ , with typical early retirement subsidies
- Cash balance: 3.95% annual pay credits and typical annual interest credits.

Each of these formulas would have provided benefits worth approximately \$8.4 billion to the total of about 259,000 terminated and retired employees considered in this comparison. The average benefit value was approximately \$32,400. Those who had less than five years of service at termination (or retirement) were excluded from

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the comparisons because it was assumed that such persons would have been ineligible for plan benefits because of vesting requirements.

It is important to note that other cash balance and final average pay benefit designs could have been considered which would have produced the same aggregate benefit values but different distribution patterns. The specific plan designs used in our comparison are not presented as representative of current industry practice.

This study shows that for the two plan designs, the final average pay plan concentrates benefits on those who terminate at the later ages with longer service when compared with the cash balance plan. About two-thirds of the employees would have received more valuable benefits under the cash balance plan. Their average benefit value was \$22,100 under the cash balance plan and \$8,500 under the final average pay plan. For the one-third of the employees who would have received more valuable benefits under the final average pay plan, the average benefit value was \$54,300 for the cash balance plan and \$83,200 for the final average pay plan. The proportion of females who would have received more valuable cash balance benefits is higher—about three-quarters—due to their relatively higher turnover particularly at the younger ages where the cash balance plan provides more valuable benefits than the final average pay plan.

This study focuses on benefit values potentially available at retirement from a single employer. An analysis of how job changes (that is, worker mobility) and the prevalence of different payment forms (for example, lump sums) might affect the amounts ultimately available at retirement under different plan designs is beyond the scope of this study.

More details on these comparisons are presented in the balance of this report.



## Section 2. Description of Data

For a detailed description of the data, the reader is referred to “Pension Plan Turnover Rate Table Construction” by Steve Kopp, scheduled for publication in the *1997-98 TSA Reports*. Advance copies of this report are available from the SOA.

The data for the SOA turnover study consisted of data from 41 large pension plans, covering termination and retirement experience from 1989 through 1995. The benefit comparisons in this study included data for 35 of those plans—six of them were excluded either because the format of the data differed significantly from that of the other plans or because no pay information was provided. This process coincidentally excluded the data from Canadian employees. Some plans provided data for only one year, while a few provided data for all seven years. A summary of the data by year is shown in the Appendix on page 11. Tables 1 and 2 show the distribution of terminations included in this data by gender, age, and length of service. Some of the plans considered for this study provided age information using

age nearest birthday, while others provided data using age last birthday. The method for adjusting the age data to a consistent basis is presented in the SOA turnover study.

**TABLE 1**  
**Number Terminated by Age Group**  
**and Accumulated Percentage through Indicated Age Group**

Age	Males		Females		Sex Not Identified		Total	
	No.	Accum. Percentage	No.	Accum. Percentage	No.	Accum. Percentage	No.	Accum. Percentage
< 26	1,288	0.9%	2,142	3.3%	362	0.8%	3,792	1.5%
26-30	12,068	8.8	11,625	21.0	4,911	12.4	28,604	12.5
31-35	18,636	21.1	11,138	38.1	8,260	31.8	38,034	27.1
36-40	16,977	32.3	8,147	50.5	7,010	48.2	32,134	39.5
41-45	15,628	42.7	6,953	61.1	6,278	63.0	28,859	50.6
46-50	16,466	53.5	6,487	71.0	4,907	74.5	27,860	61.4
51-55	17,101	64.8	5,284	79.1	3,545	82.8	25,930	71.4
56-60	21,321	78.9	5,342	87.3	3,508	91.0	30,171	83.0
61-65	25,468	95.7	6,281	96.9	3,069	98.3	34,818	96.4
> 65	6,463	100.0	2,049	100.0	743	100.0	9,255	100.0
Total	151,417		65,447		42,595		259,458	

**TABLE 2**  
**Number Terminated by Service Group**  
**and Accumulated Percentage through Indicated Service Group**

Service	Males		Females		Sex Not Identified		Total	
	No.	Accum. Percentage	No.	Accum. Percentage	No.	Accum. Percentage	No.	Accum. Percentage
5-10	56,861	37.6%	41,380	63.2%	19,878	46.7%	118,119	45.5%
11-15	16,463	48.4	9,102	77.1	8,384	66.4	33,949	58.6
16-20	17,005	59.7	6,377	86.9	5,262	78.7	28,644	69.6
21-25	20,458	73.2	3,986	93.0	4,798	90.0	29,242	80.9
> 25	40,630	100.0	4,601	100.0	4,273	100.0	49,504	100.0
Total	151,417		65,447		42,595		259,458	



For this hypothetical plan comparison, a separation from employment which occurred at age 54 or under was assumed to be a termination. If separation occurred at age 55 or above, it was considered a retirement. The significance of this distinction was to credit all terminations at or after age 55 with the benefit of subsidized early retirement factors under the hypothetical final average pay plan. This distinction had no impact on cash balance accumulations.

The employees covered under the plans worked in various regions of the U.S. (that is, there was no concentration in any particular region) and the plan sponsors operated in a variety of industries, as follows:

- Manufacturers of food and textile products
- Lumber processors
- Chemicals, glass, plastics, printing
- Manufacturers of motor vehicles, aircraft, and other machinery
- Manufacturers of electronic and communications equipment
- Utilities and communications services
- Retail and medical services
- Financial services.

Separate comparisons by geographic or industry division were not made because of problems associated with the interdependence of the variables. In the judgment of the authors, there were not enough plans to be able to determine whether geography or industry could account for any noticeable difference. Readers interested in potential geographical or industry differentials are encouraged to review the SOA turnover study.



### Section 3. Methodology for Completing the Comparison

This project used the broad sample of data on employees who terminated in recent years from several medium to large companies in various industries and geographic regions to compare the present value (at termination of employment) of the accrued pensions the employees would have received had they been covered under two hypothetical defined-benefit plans: a final five-year average pay plan and a cash balance plan. Employees who terminated or retired in a given plan in a particular year at each integral age and service combination had been grouped in earlier phases of the SOA turnover study. Thus, for purposes of the benefit comparison, each such grouping would have the number of people included and the total (or average) pay. Below, we characterize a person included in a particular grouping as a “representative terminated employee”—the annual pay being the average pay for the grouping.

#### *HYPOTHETICAL PLANS AND PRESENT VALUES*

*Final Pay Plan.* The accrued benefit was determined for each representative terminated employee by taking 1% of final five-year average pay, multiplied by total years of service with the employer. To develop a compensation history, the most

recent annual pay was “regressed” to estimate a five-year average assuming 4% annual pay increases.

Representative employees under age 55 at termination were assumed to have their benefits commence at age 65. Representative employees who terminated employment between ages 55 and 61 were assumed to receive an immediate annuity equal to the accrued benefit, reduced by 4% per year below age 62 (for example, 72% at age 55). Representative employees who terminated employment at ages 62 and older were assumed to receive an immediate annuity equal to the accrued benefit.

The present value of each representative terminated employee’s annuity benefit was determined at employment termination by using 7.5% interest and the 1983 GAM Table (50% male/50% female).

The present values for all 259,458 representative terminated employees (which excluded 102,587 persons with less than five years of service) totaled \$8,407,736,490.

*Cash Balance Plan* The estimated cash balance account, which was also deemed to be the present value, was developed in two stages. First, a preliminary benefit was developed by estimating pay credits in all prior years of service based on 5% of each such year’s pay; the most recent year’s annual pay was “regressed” assuming annual pay increases of 4%. Annual interest credits were assumed to be 6.5%. The calculated present values were then summed.

Next a “benefit equivalent” cash balance plan was determined. This was accomplished by multiplying each of the individual cash balance accounts by the following ratio for all plans and years combined: the sum of the final average pay plan present values divided by the sum of the preliminary cash balance benefits. The ratio turned out to be 0.79. Thus, this adjustment process converted the initial cash balance pay credit from 5.0% to 3.95%.

*Comments on Assumptions and Methodology.* In order to make our comparisons, assumptions were required with respect to discount rate, salary increases, mortality and cash balance interest credits. The assumptions chosen were considered to be individually reasonable (over the long term) and internally consistent at the time this study was performed.

The use of unisex rather than sex-distinct mortality in converting the final average pay benefits to present values is consistent with the presumption that all employees would receive their benefits (under both plan types) in a lump sum—by law, unisex mortality must be used in converting one form of benefit to another. The analysis could have been refined (but at the expense of additional complexity) had we assumed that one or both of the plans (more likely the final average pay plan) did not permit lump sums (at least with respect to amounts over the mandatory cashout limit) or had we assumed that females will tend to elect annuities more often than males (due to their longer life expectancies). However, we do not believe that such refinement would have materially changed the observations made in this study.

The cash balance credit assumption was chosen to be representative of the typical rates credited in such plans and to reflect the same underlying inflation assumption included in the other economic related assumptions.

Different assumptions would produce different results, but no sensitivity analysis was done as part of this study due to budget limitations and time constraints.

Other methods could have been used to determine the benefit levels at which the two hypothetical plans are equally generous (e.g., including the present values of projected benefits for active employees in addition to those of terminated and retired employees). The approach used was considered to be the most straightforward since it required the fewest assumptions regarding future contingencies.



#### **Section 4. Presentation of Results**

The tables in the Appendix show distributions by age and service of the terminated and retired employees. In addition to the number of persons in each group, we show the average pay and average present value of benefits under the two hypothetical plans. Three sets of tables of benefits by age and service are provided: Table A-1 shows all terminated and retired employees; Table A-2 separately by sex (for those whose sex was identified); and Tables A-3 separately by pay type (for those where hourly or salaried status was identified). In addition, several tables that follow summarize certain information in the Appendix.

*All Terminated and Retired Employees (Table A-1).* While the two different hypothetical plans produced the same aggregate benefit values for the employees who left service during the period covered, there were, as would be expected, significant differences depending upon a participant's age and service at the time of employment termination. Table 3 summarizes the relative distributions of benefits by age under the two hypothetical plans.

In a cash balance plan, especially one that uses a single pay credit factor such as the hypothetical plan selected for this study, the value of an accrued benefit tends to be independent of age—length of service and compensation history being the primary factors. In a final average pay plan, the value of an accrued benefit depends on age, service and recent compensation. Because the final average pay plan benefit value depends much more on age, younger employees tend to do relatively better in a cash balance plan than in a final average pay plan. Also, because there is a high correlation between age and service (that is, young employees tend to have short service and vice versa), shorter service employees also tend to do relatively better in the cash balance plan than in a final average pay plan—see Table 4. Thus, our hypothetical 3.95% cash balance formula provides similar benefits to all employees with similar lengths of service and salary histories. On the other hand, our hypothetical final average pay plan provides significantly better benefits to older employees at the expense of smaller benefits to younger employees with the same years of service.

**TABLE 3**  
**Comparison of Present Value of Benefits in Cash Balance**  
**and Final Average Pay Plans by Age Groups**

Age	Average Present Value of:		Average of Final Years' Pay	Present Value as a Percentage of Final Pay	
	Cash Balance Account	Final Average Pay Benefit		Cash Balance	Final Average Pay
<b>All Employees</b>					
< 26	\$ 4,568	\$ 464	\$19,644	23.3	2.4
26-30	8,490	1,151	29,379	28.9	3.9
31-35	13,169	2,399	35,406	37.2	6.8
36-40	19,046	4,785	38,271	49.8	12.5
41-45	26,563	9,129	39,879	66.6	22.9
46-50	34,206	16,140	41,311	82.8	39.1
51-55	45,925	41,176	41,272	111.3	99.8
56-60	55,200	83,272	40,334	136.7	206.5
61-65	55,831	89,302	37,963	147.1	235.2
> 65	55,622	78,382	37,313	149.1	212.7
<b>Female Employees</b>					
< 26	\$ 4,016	\$ 406	\$17,016	23.6	2.4
26-30	7,177	960	24,535	29.3	3.9
31-35	10,492	1,896	28,565	36.7	6.6
36-40	13,898	3,502	30,212	46.0	11.6
41-45	16,687	5,846	30,346	55.0	19.3
46-50	17,947	8,790	29,634	60.6	29.7
51-55	23,058	21,478	28,817	80.0	74.5
56-60	28,614	45,453	28,077	101.9	161.9
61-65	31,285	52,269	27,213	115.0	192.1
> 65	30,742	45,240	25,702	119.6	176.0
<b>Male Employees</b>					
< 26	\$ 5,084	\$ 518	\$22,086	23.0	2.3
26-30	8,991	1,226	31,849	28.2	3.8
31-35	13,506	2,474	36,955	36.5	6.7
36-40	20,010	5,025	39,739	50.4	12.6
41-45	28,884	9,910	42,036	68.7	23.6
46-50	39,143	18,367	44,249	88.5	41.5
51-55	52,592	47,039	44,067	119.3	106.7
56-60	62,030	92,694	42,826	144.8	216.4
61-65	61,901	98,117	40,100	154.4	244.7
> 65	63,355	88,562	40,681	155.7	217.7

A BENEFIT VALUE COMPARISON OF A CASH BALANCE PLAN

**TABLE 4**  
**Comparison of Present Value of Benefits in Cash Balance**  
**and Final Average Pay Plans by Service Groups—**  
**Separately by Terminations and Retirees\***

Service	Number	Average Present Value of:		Average of Final Years' Pay	Present Value as a Percentage of Final Pay	
		Cash Balance Account	Final Average Pay Benefit		Cash Balance	Final Average Pay
Retirees (Age 56 and Over)						
5-10	10,092	\$11,322	\$ 23,063	\$36,187	31.3	63.7
11-15	7,895	21,237	40,571	35,322	60.1	114.9
16-20	9,197	32,291	58,102	36,563	88.3	158.9
21-25	11,948	44,379	74,828	36,710	120.9	203.8
>25	35,112	85,870	124,338	41,727	205.8	298.0
Terminations (Age 55 and Under)						
5-10	108,027	\$10,319	\$ 3,141	\$34,718	29.7	9.0
11-15	26,054	25,379	8,032	37,832	67.1	21.2
16-20	19,447	34,710	15,090	39,644	87.6	38.1
21-25	17,294	49,736	25,974	41,600	119.6	62.4
>25	14,392	72,916	53,456	44,241	164.8	120.8

\* Because of the way in which the five-year age groups were set in developing the tables, employees who terminated at age 55 were included with those who terminated in the age group 51-55. Therefore, they were included with the "terminations" rather than the "retirees" in this Exhibit.

About 68% of the people would have received cash balance benefits which exceeded the present value of benefits under the final average pay plan. These people were all under age 55. The aggregate cash balance accounts for these 68% is about \$3.9 billion, which is about 46% of the \$8.4 billion total present value. These same people would receive about \$1.5 billion in benefit value from the final average pay plan, which is about 18% of the \$8.4 billion total present value. Half of the total present value of \$8.4 billion would go to those under age 56 in the cash balance plan and half would go to those under age 60 in the final average pay plan. The converse is, of course, that the final average pay plan provides much larger benefits to the older employees, those who are actually retiring.

*Distributions by Sex (Table A-2).* Females tend to receive proportionately larger benefit values under the hypothetical cash balance plan than they do in the final average pay plan. This occurs because relatively more females terminated employment at the younger ages. About 77% of females received cash balance benefits with a higher present value than under the final average pay plan, compared with 61% of

males who received larger benefit values in the cash balance plan. Table 3 shows for females and males the relative distribution of benefits by age under the two hypothetical plans.

The data also reveal significant differences in average pay (and therefore benefits) by sex. The average pay for males was \$40,369 and for females was \$27,744. The average benefit value for males was \$42,638 in the final average pay plan and \$39,694 in the cash balance plan. The average benefit value for females was \$14,311 in the final average pay plan and \$16,635 in the cash balance plan. These results are a reflection of the fact that in this data older retirees tended to be higher paid or male, whereas younger terminees were more likely to be lower paid or female.

*Distributions by Pay Type (Table A-3).* The relationships observed for all terminated and retired employees are virtually the same as the relationships observed for those who are indicated as salaried and for those who are indicated as hourly paid. The fact that little difference was observed by pay type is an indication that there was not a material difference between salaried and hourly turnover rates by age. One should not conclude from this observation, however, that a comparison by pay levels would also reveal little difference. Because of the way the data were assembled, we were not able to make proper comparisons by pay levels.



## **Section 5. Conclusions**

Using actual termination data, this study has compared the distribution of benefits from a hypothetical final average pay plan with those from a hypothetical cash balance plan with similar total benefit distributions. It demonstrates that the hypothetical final average pay plan provides relatively higher benefits to employees who retire from the employer. On the other hand, the hypothetical cash balance plan provides relatively higher benefits to employees who terminate at younger ages.

Finally, the authors thank the Pension Section Council of the Society of Actuaries for financial support of this project.

**APPENDIX**

**DATA SUMMARY**

- (a) Total number of *active* lives covered by the plans, shown separately for each calendar year (including those with less than five years of service):

1989	273,598
1990	460,681
1991	566,415
1992	600,005
1993	612,573
1994	624,827
1995	354,449

Total 3,492,548

- (b) Total number of *terminations/retirees* included in the calculation, shown separately for each calendar year:

1989	26,788
1990	49,000
1991	58,609
1992	62,617
1993	64,004
1994	64,234
1995	36,793

Total = 362,045, less 102,588 terminations with under five years of service = 259,458.

**TABLE A-1**  
**Benefits by Age and Service**  
**All Terminated and Retired Employees**

Age Band	Years of Service	Number of Terminees	Avg. Pay at Termination	Avg. PV Final Pay	Avg. Cash Balance
< 26	5-10	3,792	\$19,644	\$ 464	\$ 4,567
< 26	11-15	0	23,158	1,285	13,225
26-30	5-10	27,445	29,425	1,116	8,240
26-30	11-15	1,159	28,292	1,979	14,413
26-30	16-20	0	27,714	3,011	23,452
31-35	5-10	28,947	35,829	2,010	10,961
31-35	11-15	8,177	34,296	3,524	19,675
31-35	16-20	910	31,914	4,665	24,922
31-35	21-25	0	32,397	5,964	35,728
36-40	5-10	17,997	38,188	3,093	11,691
36-40	11-15	6,978	40,203	5,949	24,209
36-40	16-20	6,273	36,690	7,623	31,577
36-40	21-25	887	35,931	9,896	39,052
36-40	> 25	0	26,329	9,521	40,877
41-45	5-10	12,739	38,321	4,442	11,558
41-45	11-15	4,131	41,555	8,924	25,104
41-45	16-20	5,562	42,219	12,543	37,558
41-45	21-25	5,873	39,922	15,255	46,931
41-45	> 25	555	39,246	19,182	56,113
46-50	5-10	10,791	38,904	6,470	11,739
46-50	11-15	2,923	40,626	12,600	24,525
46-50	16-20	3,591	43,019	18,400	38,176
46-50	21-25	5,955	43,966	24,116	53,309
46-50	> 25	4,599	42,627	28,986	65,240
51-55	5-10	6,317	37,371	10,544	11,225
51-55	11-15	2,685	37,780	23,440	22,726
51-55	16-20	3,111	39,369	33,927	34,796
51-55	21-25	4,579	41,773	45,255	50,758
51-55	> 25	9,239	45,347	67,695	77,746
56-60	5-10	4,148	36,933	22,140	11,249
56-60	11-15	3,084	36,317	40,269	21,881
56-60	16-20	3,681	37,788	57,867	33,402
56-60	21-25	5,023	38,988	76,482	47,218
56-60	> 25	14,236	43,329	119,365	83,677
61-65	5-10	4,280	36,555	24,839	11,600
61-65	11-15	3,578	35,148	42,317	21,095
61-65	16-20	4,339	35,785	59,685	31,661
61-65	21-25	5,693	35,173	75,073	42,457
61-65	> 25	16,928	40,410	127,908	85,050



A BENEFIT VALUE COMPARISON OF A CASH BALANCE PLAN

**TABLE A-1**  
**Benefits by Age and Service**  
**All Terminated and Retired Employees**

Age Band	Years of Service	Number of Terminees	Avg. Pay at Termination	Avg. PV Final Pay	Avg. Cash Balance
> 65	5-10	1,664	33,379	20,794	10,787
> 65	11-15	1,233	33,336	36,257	20,039
> 65	16-20	1,177	35,598	52,999	31,139
> 65	21-25	1,232	34,523	66,948	41,684
> 65	> 25	3,948	41,597	126,963	97,297
Total		259,458			

**TABLE A-2**  
**Benefits by Age and Service**  
**for Females and Males**

Age Band	Years of Service	Number of Terminees	Avg. Pay at Termination	Avg. PV Final Pay	Avg. Cash Balance
<b>Females</b>					
< 26	5-10	2,142	\$17,016	\$ 406	\$ 4,015
< 26	11-15	0	24,996	1,438	14,880
26-30	5-10	11,217	24,542	933	6,985
26-30	11-15	408	24,358	1,698	12,448
26-30	16-20	0	41,796	4,256	31,798
31-35	5-10	8,794	28,476	1,578	8,658
31-35	11-15	2,103	28,895	2,960	16,760
31-35	16-20	241	28,957	4,208	22,682
31-35	21-25	0	24,835	4,778	26,430
36-40	5-10	5,368	29,027	2,308	8,694
36-40	11-15	1,448	32,825	4,863	19,831
36-40	16-20	1,171	32,228	6,586	27,628
36-40	21-25	160	31,541	8,663	34,307
41-45	5-10	4,311	28,445	3,246	8,409
41-45	11-15	911	32,293	6,945	19,441
41-45	16-20	877	34,548	10,160	30,330
41-45	21-25	771	34,305	12,929	40,473
41-45	> 25	83	35,728	17,425	51,180
46-50	5-10	3,965	27,717	4,594	8,321
46-50	11-15	808	30,301	9,424	18,201
46-50	16-20	695	32,105	13,655	28,002
46-50	21-25	543	33,821	18,243	40,499
46-50	> 25	486	35,921	24,394	56,347

**TABLE A-2**  
**Benefits by Age and Service**  
**for Females and Males**

Age Band	Years of Service	Number of Terminees	Avg. Pay at Termination	Avg. PV Final Pay	Avg. Cash Balance
<b>Females-Continued</b>					
51-55	5-10	2,330	25,897	7,278	7,800
51-55	11-15	853	28,825	17,918	17,336
51-55	16-20	785	30,376	26,500	26,549
51-55	21-25	551	30,763	34,300	36,592
51-55	>25	764	34,703	54,336	62,615
56-60	5-10	1,383	24,661	14,981	7,628
56-60	11-15	994	26,976	30,026	16,324
56-60	16-20	1,017	28,516	43,391	25,017
56-60	21-25	791	29,028	56,396	34,538
56-60	>25	1,157	32,071	89,455	63,361
61-65	5-10	1,359	22,939	16,002	7,482
61-65	11-15	1,164	25,639	30,922	15,427
61-65	16-20	1,225	27,943	46,392	24,599
61-65	21-25	930	28,199	59,500	33,601
61-65	>25	1,602	30,851	98,824	66,757
>65	5-10	521	20,417	13,012	6,720
>65	11-15	414	23,701	25,850	14,304
>65	16-20	365	26,252	38,894	22,885
>65	21-25	240	28,333	54,514	33,899
>65	>25	509	31,110	94,241	72,900
Female Total		65,447			
<b>Males</b>					
<26	5-10	1,288	\$22,086	\$ 518	\$ 5,084
26-30	5-10	11,648	31,946	1,197	8,780
26-30	11-15	420	29,151	2,039	14,839
26-30	16-20	0	23,968	2,680	21,231
31-35	5-10	14,425	37,589	2,096	11,388
31-35	11-15	3,699	35,202	3,647	20,201
31-35	16-20	513	31,765	4,656	24,795
31-35	21-25	0	36,611	6,582	40,460
36-40	5-10	9,172	40,713	3,279	12,390
36-40	11-15	3,506	41,186	6,112	24,865
36-40	16-20	3,794	36,706	7,631	31,573
36-40	21-25	505	34,813	9,588	37,804
36-40	>25	0	26,329	9,521	40,877

A BENEFIT VALUE COMPARISON OF A CASH BALANCE PLAN

**TABLE A-2**  
**Benefits by Age and Service**  
**for Females and Males**

Age Band	Years of Service	Number of Terminees	Avg. Pay at Termination	Avg. PV Final Pay	Avg. Cash Balance
<b>Males-Continued</b>					
41-45	5-10	6,168	42,740	4,927	12,812
41-45	11-15	2,069	43,572	9,373	26,405
41-45	16-20	3,445	42,865	12,758	38,224
41-45	21-25	3,591	39,509	15,170	46,387
41-45	>25	355	38,376	18,785	54,898
46-50	5-10	5,192	45,365	7,487	13,557
46-50	11-15	1,418	44,258	13,751	26,774
46-50	16-20	2,166	44,683	19,168	39,833
46-50	21-25	4,328	44,048	24,274	53,548
46-50	>25	3,363	42,501	28,996	64,880
51-55	5-10	3,136	44,652	12,582	13,305
51-55	11-15	1,280	42,205	26,485	25,377
51-55	16-20	1,787	41,967	36,365	37,206
51-55	21-25	3,381	42,296	45,925	51,611
51-55	>25	7,517	45,435	67,952	77,715
56-60	5-10	2,274	44,361	26,347	13,362
56-60	11-15	1,511	42,204	46,744	25,348
56-60	16-20	2,055	41,440	63,607	36,701
56-60	21-25	3,596	40,350	79,420	49,091
56-60	>25	11,885	43,600	120,278	84,301
61-65	5-10	2,534	44,319	29,762	13,893
61-65	11-15	1,890	40,976	49,283	24,563
61-65	16-20	2,579	39,021	65,139	34,554
61-65	21-25	4,179	35,667	76,351	43,210
61-65	>25	14,287	40,727	129,019	85,758
>65	5-10	1,024	40,196	24,780	12,867
>65	11-15	672	40,009	43,443	24,010
>65	16-20	666	40,317	59,973	35,261
>65	21-25	879	36,068	70,176	43,738
>65	>25	3,223	42,307	129,143	98,744
<b>Males Total</b>		<b>151,417</b>			

**TABLE A-3**  
**Benefits by Age and Service**  
**by Pay Type**

Age Band	Years of Service	Number of Terminees	Avg. Pay at Termination	Avg. PV Final Pay	Avg. Cash Balance
<b>Hourly</b>					
< 26	5-10	421	\$25,374	\$ 589	\$ 5,783
26-30	5-10	2,812	26,417	1,070	8,045
26-30	11-15	388	29,246	2,051	14,881
26-30	16-20	0	20,394	2,403	19,599
31-35	5-10	3,772	28,674	1,661	9,003
31-35	11-15	3,134	31,075	3,229	18,195
31-35	16-20	453	31,163	4,567	24,315
31-35	21-25	0	21,393	3,075	22,767
36-40	5-10	2,594	29,602	2,453	9,314
36-40	11-15	2,328	32,307	4,820	19,754
36-40	16-20	3,088	32,530	6,758	28,383
36-40	21-25	517	33,721	9,284	36,623
36-40	> 25	0	25,157	9,173	40,142
41-45	5-10	1,741	29,431	3,467	9,059
41-45	11-15	1,267	32,176	6,976	19,733
41-45	16-20	2,204	32,994	9,812	29,618
41-45	21-25	3,088	34,082	12,984	40,357
41-45	> 25	300	34,956	17,088	49,945
46-50	5-10	1,363	28,707	4,915	8,945
46-50	11-15	848	30,846	9,707	18,907
46-50	16-20	1,317	32,530	13,974	28,982
46-50	21-25	2,675	33,293	18,276	40,502
46-50	> 25	2,241	34,245	23,110	52,467
51-55	5-10	770	27,358	7,950	8,525
51-55	11-15	726	29,806	18,584	18,321
51-55	16-20	1,143	31,138	26,788	27,648
51-55	21-25	2,044	32,074	35,178	38,997
51-55	> 25	3,839	32,455	46,992	55,132
56-60	5-10	472	25,974	16,256	8,293
56-60	11-15	741	29,064	32,720	17,863
56-60	16-20	1,265	30,418	46,819	27,106
56-60	21-25	2,134	31,339	61,493	37,961
56-60	> 25	5,612	30,502	83,383	58,450
61-65	5-10	471	24,651	17,548	8,226
61-65	11-15	722	28,719	35,280	17,637
61-65	16-20	1,431	28,002	47,090	24,993
61-65	21-25	2,504	26,276	56,214	31,757
61-65	> 25	6,911	26,561	82,841	54,685

A BENEFIT VALUE COMPARISON OF A CASH BALANCE PLAN

**TABLE A-3**  
**Benefits by Age and Service**  
**by Pay Type**

Age Band	Years of Service	Number of Terminees	Avg. Pay at Termination	Avg. PV Final Pay	Avg. Cash Balance
<b>Hourly-Continued</b>					
> 65	5-10	196	24,410	15,981	8,372
> 65	11-15	211	29,283	32,096	17,689
> 65	16-20	291	30,034	45,239	26,480
> 65	21-25	477	25,622	49,900	30,911
> 65	> 25	1,648	28,591	85,954	65,066
Hourly Total		70,159			
<b>Salaried</b>					
< 26	5-10	351	\$24,148	\$ 582	\$ 5,499
< 26	11-15	0	24,996	1,438	14,880
26-30	5-10	4,356	34,752	1,256	9,142
26-30	11-15	110	33,940	2,383	17,396
31-35	5-10	5,083	41,270	2,282	12,455
31-35	11-15	1,096	42,542	4,405	24,116
31-35	16-20	87	41,175	6,025	32,255
31-35	21-25	0	43,214	8,465	51,687
36-40	5-10	2,990	44,858	3,600	13,581
36-40	11-15	1,406	48,164	7,179	29,118
36-40	16-20	947	48,092	10,097	41,015
36-40	21-25	131	48,771	13,456	53,132
36-40	> 25	0	28,593	10,192	42,297
41-45	5-10	2,071	46,184	5,306	13,800
41-45	11-15	842	49,454	10,662	30,157
41-45	16-20	1,197	53,168	15,813	47,346
41-45	21-25	1,150	53,470	20,533	62,632
41-45	> 25	103	51,753	25,255	74,027
46-50	5-10	1,575	47,770	7,787	14,158
46-50	11-15	515	50,349	15,664	30,627
46-50	16-20	695	52,924	22,595	47,149
46-50	21-25	1,335	57,490	31,539	69,792
46-50	> 25	991	57,033	38,838	86,896
51-55	5-10	816	46,206	12,718	13,705
51-55	11-15	414	46,563	29,316	28,294
51-55	16-20	498	49,852	42,442	44,156
51-55	21-25	890	53,909	57,934	65,880
51-55	> 25	2,127	59,045	87,463	100,462

**TABLE A-3**  
**Benefits by Age and Service**  
**by Pay Type**

Age Band	Years of Service	Number of Terminees	Avg. Pay at Termination	Avg. PV Final Pay	Avg. Cash Balance
<b>Salaried-Continued</b>					
56-60	5-10	486	45,423	26,966	13,697
56-60	11-15	434	46,830	52,112	28,359
56-60	16-20	491	50,139	76,405	44,200
56-60	21-25	747	50,214	98,570	61,116
56-60	>25	2,906	54,381	148,939	104,673
61-65	5-10	483	42,038	27,998	13,050
61-65	11-15	495	44,617	53,985	26,929
61-65	16-20	545	47,388	78,972	41,890
61-65	21-25	715	48,182	103,182	58,373
61-65	>25	3,180	52,848	167,341	111,142
>65	5-10	227	37,760	23,133	12,008
>65	11-15	147	44,745	48,719	26,825
>65	16-20	153	47,385	71,398	41,710
>65	21-25	122	48,724	93,836	58,368
>65	>25	706	57,623	179,382	138,010
Salaried Total		43,614			
<b>Hourly and Salaried Combined</b>					
<26	5-10	3,020	\$18,323	\$ 435	\$ 4,290
<26	11-15	0	21,320	1,132	11,570
26-30	5-10	20,277	28,698	1,092	8,073
26-30	11-15	660	26,786	1,869	13,639
26-30	16-20	0	37,810	3,850	28,765
31-35	5-10	20,092	35,796	2,007	10,951
31-35	11-15	3,947	34,565	3,514	19,617
31-35	16-20	370	30,647	4,462	23,935
31-35	21-25	0	35,588	6,918	38,384
36-40	5-10	12,413	38,376	3,104	11,733
36-40	11-15	3,244	42,419	6,226	25,278
36-40	16-20	2,238	37,603	7,770	31,990
36-40	21-25	239	33,686	9,272	36,606
41-45	5-10	8,927	38,230	4,432	11,525
41-45	11-15	2,021	44,145	9,421	26,366
41-45	16-20	2,161	45,564	13,518	40,233
41-45	21-25	1,635	41,420	15,828	48,299
41-45	>25	151	39,235	19,200	56,144

A BENEFIT VALUE COMPARISON OF A CASH BALANCE PLAN

**TABLE A-3**  
**Benefits by Age and Service**  
**by Pay Type**

Age Band	Years of Service	Number of Terminees	Avg. Pay at Termination	Avg. PV Final Pay	Avg. Cash Balance
<b>Hourly and Salaried Combined-Continued</b>					
46-50	5-10	7,853	38,895	6,476	11,739
46-50	11-15	1,560	42,733	13,161	25,564
46-50	16-20	1,579	47,406	20,244	41,893
46-50	21-25	1,945	49,363	27,053	59,612
46-50	>25	1,366	45,922	31,475	70,480
51-55	5-10	4,731	37,477	10,592	11,236
51-55	11-15	1,545	39,175	24,148	23,304
51-55	16-20	1,469	42,216	36,592	37,181
51-55	21-25	1,645	47,257	50,914	57,189
51-55	>25	3,273	51,567	79,131	89,510
56-60	5-10	3,190	37,260	22,274	11,313
56-60	11-15	1,908	36,740	40,505	21,966
56-60	16-20	1,925	39,480	60,398	34,784
56-60	21-25	2,141	42,695	83,717	51,596
56-60	>25	5,717	50,304	139,654	97,769
61-65	5-10	3,326	37,442	25,411	11,866
61-65	11-15	2,361	35,127	42,020	20,928
61-65	16-20	2,363	37,820	62,860	33,337
61-65	21-25	2,474	40,418	86,037	48,686
61-65	>25	6,836	48,624	155,125	103,610
>65	5-10	1,241	33,994	21,126	10,945
>65	11-15	876	32,402	35,173	19,469
>65	16-20	734	35,353	52,249	30,789
>65	21-25	633	38,506	74,637	46,601
>65	>25	1,593	47,949	146,157	112,597
Hourly and Salaried Total		145,685			





# THE CASH BALANCE PENSION PLAN

BY DENNIS R. COLEMAN<sup>1</sup>

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## THE CASH BALANCE PENSION PLAN CONCEPT

### 1. Origins

One of the more recent evolutionary innovations in the employee benefits field is known as the cash balance pension plan. This relatively new type of plan combines aspects of both traditional defined-benefit pension plans and defined-contribution plans within a single vehicle. The cash balance concept originated in the mid-1980s, in response to a growing realization that more traditional retirement vehicles were no longer keeping pace with the changing needs of employers and the work force.

(a) *Inadequacy of Traditional Defined-benefit Plans.* A generation ago, when most defined-benefit plans were established, it made sense to skew retirement benefits heavily toward long service employees, since workers commonly spend their entire careers at one company. But times have changed, and in today's era of employer downsizing, worker mobility, and involuntary layoffs, one-company employees are the exception rather than the rule. Fewer than one in five employees remain with one employer throughout his or her career.

Under traditional final-average-pay defined-benefit plans, benefits accrue on an age-related basis. In other words, even though employees of different ages with equal pay accrue the same amount of normal retirement pension benefit for each year of service, far less money is needed to be set aside on behalf of a younger employee than his older counterpart. This is because, until the pensions become payable at normal retirement date, the money set aside on the younger employee's behalf has more time to earn interest than does the money set aside for the older worker. As a result, the pension values of younger workers under final-average-pay plans accrue at a much slower pace than do their older colleagues. So, when a 35-year-old participant with 10 years of service in a final-average-pay plan leaves his employer, he is likely to be shocked at how little his accrued pension benefit is worth in terms of current dollar value.

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Compounding this problem for the short-service employee is the fact that most final-average-pay plans freeze the benefit to which terminating employees are entitled at benefit levels that are tied to their compensation at the time they left. Accordingly, the amount of benefits to which these individuals will be entitled at retirement may be even further eroded, since the benefit is based on outdated pay, which does not keep pace with inflation.

It is no wonder that a substantial segment of today's work force, other than those at the tail end of their careers, appear to place little value on their traditional pension plan.

*(b) Strengths of Defined-contribution Plans.* In contrast with the declining appeal of traditional defined-benefit plans over the years, defined-contribution plans have enjoyed ever-increasing levels of appreciation with employees at all stages of their careers. This has been the case despite the fact that defined-contribution plans typically cost a fraction of their defined-benefit cousins' and thus provide less benefit security.

There are several reasons for the appeal of the defined-contribution plan format, and they all reflect the individual account orientation of these plans. First, plan benefit values accumulate on a level basis, and thus grow far more rapidly in the earlier stages of an employee's career as compared to traditional defined-benefit plans. This is because the contributions to such plans are typically age neutral—the amount of company contribution made on a participant's behalf each year is unrelated to the employee's age. Instead, defined-contribution plans generally provide benefits in line with the modern corporate objective of providing comparable pay for comparable work without regard to age. Such an accrual pattern is far more beneficial to younger employees, since plan benefit values (i.e., the individual participant accounts) accrue more rapidly at early states of an employee's career than under the "backloaded" accrual pattern of a traditional defined-benefit plan.

Also, under a traditional defined-benefit plan, benefits are typically expressed in terms of a complex pension formula, which is neither easily communicated nor readily understood by the average plan participant. More often than not, the benefit—which is usually framed in terms of a single life annuity beginning at "normal retirement age"—is viewed by younger employees as nothing more than a distant promise of a remote benefit commencing some time next century, and its dollar value is particularly elusive for most employees. In contrast, a defined-contribution formula is usually straightforward and easy to comprehend, and the value of the benefit that is earned for each year of service (i.e., the employer's contribution and the interest credited on the account) can be understood and appreciated by even the most unsophisticated plan participant.

Furthermore, employee appreciation of a defined-contribution plan is typically reinforced at regular intervals through periodic statements (usually quarterly) reflecting contributions and earnings credited to the employee's account since the last valuation date, and the resulting new balance at the end of the current valuation

period. Note that such periodic statements can render even a complicated contribution formula quite understandable, inasmuch as statements keep employees up-to-date on their primary concern, which is knowing the current value of their account.

Finally, defined-contribution plans invariably provide participants with the right to receive their distribution in the form of a lump-sum cash distribution on termination of employment—a feature less frequently seen in traditional defined-benefit plans, but one that has great appeal to employees.

(c) *Why Employers Continue to Maintain Defined-Benefit Plans.* To the typical plan sponsor, the less popular pension plan usually costs more and the more popular defined-contribution plan usually costs less. So why do employers maintain traditional pension plans under these circumstances? Why not look solely to a defined-contribution plan for company-sponsored retirement benefits? While a few employers have done just that, most have not for a number of reasons:

- Because of their inherent market volatility, defined-contribution plans cannot be relied on to provide safe and secure retirement income, and benefit adequacy can be a special problem for early retirees and employees hired late in their careers. Nor do these plans have an effective mechanism to either provide past-service benefits or update accrued benefits. If the plan is a company-match savings plan, as is usually the case, a certain portion of the work force will decline to participate or will participate only marginally. If contributions are determined by profits, benefit adequacy will be at the mercy of the employer's year-to-year profitability. Additionally, in either case, in-service withdrawals can seriously erode benefit adequacy.
- A defined-contribution plan transfers the investment risk to the employee, and as a consequence, problems might ensue if the employee retires or terminates in a down market, or if the fund's managers achieve unsatisfactory results. The employee, who has a shorter time horizon than the employer, is not as well equipped as the employer to ride out the inevitable down-market cycles.
- Employers are concerned that employees may misuse a defined-contribution plan in any of several ways, including: withdrawing funds intended for retirement during working years, electing not to participate in a plan requiring employee contributions to the extent that the employer envisioned, or choosing the wrong investment options. In this regard, note that where employees have choice over their investments (as would generally be the case in the defined-contribution context), they tend to be conservative, typically allocating as much as 80% of their account balances on average toward fixed-income investments. Because the employer's longer time horizon enables it to ride out down-market cycles, a defined-benefit plan can expect to achieve better investment results over the long haul through diversification, thereby potentially generating additional funds that presumably can be shared with employees or with shareholders via a reduced pension expense.

- Defined-contribution plans lack funding flexibility. In contrast, the funding for a defined-benefits plan can anticipate turnover, amortize gains and losses, provide a range of company contribution levels, and in general help the employer manage the incidence of costs to meet the company's objectives, all within various professional and legal parameters.
- As a general rule, under the Internal Revenue Code (the Code) Section 415 limits on contributions and benefits, the amount of qualified plan benefits that can be delivered to higher paid employees can be maximized only if benefits are provided through a combination of defined-benefit and defined-contribution plans.
- A defined-benefit plan, unlike its defined-contribution counterpart, can be used as a vehicle to provide enhanced benefits to employees as an inducement to encourage them to retire under a voluntary early-retirement "window" program. This factor is attracting increasing attention in the current era of corporate downsizing.
- In a defined-benefits plan, the gain from forfeitures can be factored into the employer's cost from the plan's inception. In a defined-contribution plan, on the other hand, the employer cannot take credit for forfeitures until they actually occur, and even then only if the plan provides that the forfeiture is to be applied to reduce employer contributions. For an employer with high turnover and a tight budget, this factor can weigh in favor of the defined-benefit plan, particularly in the early years of a plan's existence.

These were among the considerations that prompted Bankamerica—the first employer to adopt a cash balance plan—to reconsider in 1985 the format of its traditional defined-benefit pension plan (final average pay with a social security offset). After an exhaustive study, the bank concluded that the ideal pension vehicle to address its needs would be neither a traditional defined-benefit plan nor a traditional defined-contribution plan, but instead a new vehicle that combined the best features of both—and thus the cash balance pension plan was born. Most employers that have adopted the cash balance concept have retained their defined-contribution savings plan (in many cases improving the latter in the process), since the combination can be tailored to provide an ideal retirement program mix. Both utilize individual employee accounts, with the cash balance plan providing the retirement security that only a defined-benefit plan could offer and the savings plan permitting employees to "play the market" to the extent they desire.

#### DESCRIPTION OF THE PLAN

What is a cash balance plan? How does it blend seemingly inconsistent characteristics of both defined-benefit and defined-contribution plans within a single vehicle?

(a) *Defined-Contribution Plan Attributes.* The cash balance pension plan is a defined-benefit plan that is designed to look like—and be perceived by employees

## THE CASH BALANCE PENSION PLAN

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as—a “riskless” defined-contribution plan. As such, a typical cash balance plan embodies the following appealing attributes normally found only in defined-contribution plans:

- Individual accounts, under which the current value of benefits is expressed understandably and visibly via periodic statements as a lump-sum cash amount
- Payouts that are available in the form of lump-sum cash distributions
- Predictable costs that tend to vary with payroll
- Benefit accruals that are “age neutral.”

(b) *Defined-Benefit Plan Attributes.* However, since a cash balance plan is, in actuality, a defined-benefit rather than a defined-contribution plan, it also incorporates the following features generally associated with defined-benefit plans:

- Dependable and secure income (accounts can never go down—they always increase at a specified rate)
- The ability to provide past service benefits and benefit updates, if necessary or desirable
- Funding flexibility—a cash balance plan is funded on an actuarial basis, so that the employer can contribute any amount within the usual Internal Revenue Service (IRS) minimum and maximum deductible contribution limits
- Benefits that are guaranteed (implicitly by the minimum funding requirements of the Employee Retirement Income Security Act of 1974 (ERISA) and explicitly by the Pension Guaranty Corporation)
- Attractive annuity options, so that an employee who wants a life annuity does not need to take his or her account outside the plan where it would cost more to purchase the same annuity benefits
- The ability of the employer to formulate a risk/reward investment policy for plan assets that is consistent with its own objectives.

Both management and employees at Bankamerica initially gave the cash balance plan a warm welcome, and their enthusiasm has grown over time. To date, hundreds of plan sponsors have followed suit, many of which are in the Fortune 500 club, and well over one million employees already participate in such plans.

## OPERATION OF THE PLAN

Like all defined-benefit plans, cash balance plans embody a specific promise to pay a formula-determined benefit at retirement. However, instead of expressing that promise as a benefit based on final average pay, the benefit is framed in terms of an individual account balance that steadily grows over time in line with salary increases and a guaranteed interest credit. At any point in time, in effect, the account represents the present value of the underlying accrued pension benefit. Since the benefit is structured to resemble the benefit of a defined-contribution plan, the focus is on the amount of the lump-sum value of the accrued benefit (i.e., the account), rather than on the underlying pension benefit itself.

*(a) Key Components.* The two key components of the cash balance benefit structure consists of “pay-related credits” and “interest-related credits” to a plan participant’s cash balance “account.” The aggregate combination of these two credits is intended to replicate the corresponding account value under a defined-contribution plan in which the employer had contributed at a rate of compensation equal to the pay-related credits and the fund had earned a rate of return equal to the interest-related credits.

### *(b) Common Features*

*Establishment of Account.* A cash balance account is established for each employee who becomes a plan participant. These accounts are merely a bookkeeping device to keep track of the current lump-sum value of each participant’s accrued pension benefit, and are not directly related to plan assets. If the plan replaces an existing pension plan, employees’ initial accounts would consist of an opening balance, typically equal to the actuarial present value of their accrued prior pension plan benefits. (Of course, the employer has other options as to the prior plan’s accrued pension benefits, such as leaving them in place or purchasing an annuity, but usually the establishment of an opening balance is far more attractive and consistent with the way future benefits will be earned.)

*Pay-Related Credits.* Each month thereafter, the employee’s account receives additional pay-related credits. These are likely to be computed as a flat percentage of the employee’s compensation. A common practice is 4% or 5%, although applicable rules do not limit the choice. In addition, social security integration can be achieved by crediting a higher contribution rate on a portion of the employee’s annual pay above a specified level.

*Interest-Related Credits.* Employees’ accounts are also credited with interest-related credits at a rate specified in the plan. However, this rate is not tied to the actual investment performance of the plan’s assets. The rate credited may vary from year to year and if so, it is set and communicated to employees before the start of the year. Typically, the rate of interest credited is related to some outside, objective index, such as the consumer price index (CPI) or the yield on one-year Treasury bills.

*Prohibited Distributions During Employment.* Since a cash balance plan is officially a pension plan, withdrawals are not permitted during employment. Cash balance accounts can, however, serve as collateral for the plan loans, but very few, if any, plans utilize this feature (largely because of potential administrative problems related to the requirement that such loans be “adequately secured”). Note, too, that unlike their defined-contribution predecessors, most cash balance plans do not permit or require employee contributions. This is because (1) in the United States most pension plans are now noncontributory, and (2) pension plans by law are not permitted to accept employee contributions on a 401(k) pretax basis.

*Vesting.* Typically, the vesting schedule will tend to be in line with what is found in most capital accumulation plans. Thus it will be at least as rapid as in traditional pension plans (100% after five years), and perhaps even more rapid. Vested employees who terminate usually are entitled to their accounts in an immediate lump sum, perhaps to be rolled over into an IRA. Alternatively, the participant may choose to have his balance remain in the plan, accruing interest credits until retirement age.

*Disability and Death.* Benefits for employees who become disabled or die usually vest in full.

- Disability benefits can be paid out to coordinate with the company’s long-term disability (LTD) plan. Part or all of the employee’s balance might remain in the plan earning interest credits, or even further benefit credits, until age 65 when LTD benefits usually cease.
- Being defined-benefit plans, cash balance plans need only to provide at death the surviving spouse benefits mandated by the Retirement Equity Act of 1984. However, in practice most plans provide more substantial death benefits equal to the full account balance payable in a lump sum or convertible into an annuity, and in this case, there would usually be no difference in the value of benefits between single and married employees, or male and female employees.

*Distribution Options.* At retirement, the cash balance account may be available as a lump sum or may be convertible into any of a number of optional forms of annuity that the plan makes available, based on annuity conversion tables set forth in the plan. Of course, the normal form of benefit for a married employee must be a qualified joint-and-survivor annuity unless spousal consent is obtained.

#### AN EXAMPLE OF THE PLAN

Table 1 exemplifies a typical pattern for a new employee earning \$30,000, where the plan provides 5% pay-based credits and 7% interest-related credits. Note the rapid account buildup (representing nearly 30% of pay after five years), as well as the increasing importance of the interest credit element.

**TABLE 1**  
**Cash Balance Plan Growth**

Year	Account Value (Beginning of Year)	Pay-Based Credit	Interest Credit*	Account Value (End of Year)
1	\$ 0.00	\$1,500.00	\$ 52.50	\$1,552.50
2	1,552.50	1,500.00	161.17	3,213.67
3	3,213.67	1,500.00	277.46	4,991.13
4	4,991.13	1,500.00	401.87	6,893.00
5	6,893.00	1,500.00	535.01	8,928.01

\* Assuming credit based on mid-year value of account.

#### INCIDENCE OF ACCRUAL AND COST

Under a typical defined-benefit plan, the rate at which the value of an employee's pension benefit accrues is geared to his or her age—an older employee's rate of value growth is disproportionately higher than a younger employee's. For example, in a typical final-average-pay plan, the value of the incremental pension benefit earned for an employee at age 60 could be expected to be more than 10 times greater than for an employee at age 35. Thus, older employees receive relatively more retirement income per dollar of company cost than do employees who leave earlier in their careers.

In contrast, a cash balance accrual pattern is typically characterized by annual credits to an employee's account that are stated in terms of a fixed percentage of compensation—so the present value of the benefit accrues at a rate that is a level percentage of compensation, regardless of the participant's age. Thus, the cash balance approach is relatively more generous to younger employees and employees who terminate before retirement than the more traditional approach is, and consequently the incidence of cost under a cash balance plan also differs from its more traditional counterpart. Figure 1 compares the annual cost at various ages, as a percentage of current pay, of providing an equivalent benefit commencing at age 65 under a typical cash balance plan and a typical final-average-pay plan.

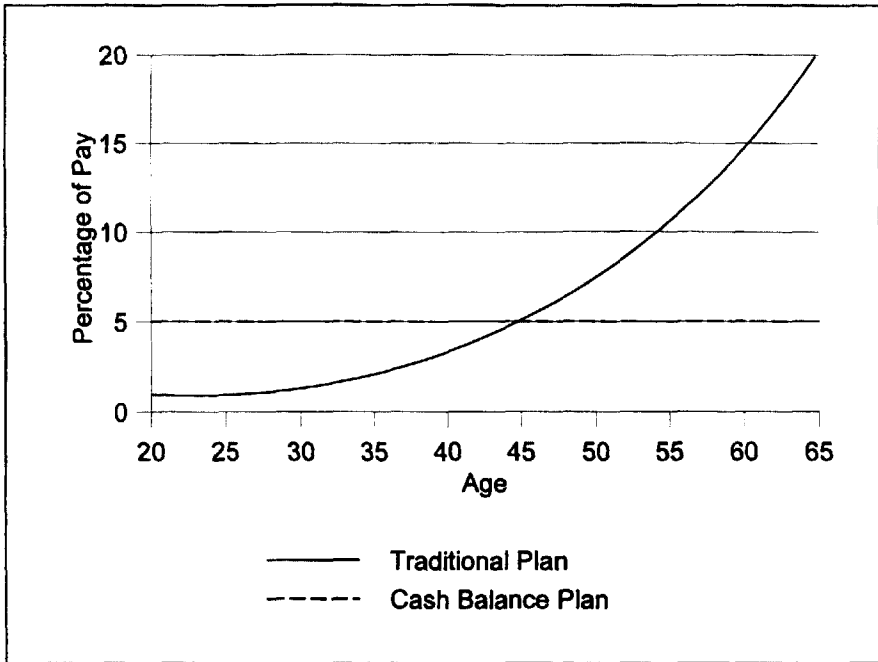
As Figure 1 graphically demonstrates, employees who terminate employment early in their careers under the cash balance approach will be entitled to larger benefits, and incur greater employer cost, than under the traditional approach. For a plan sponsor that can afford to commit only a fixed percentage of payroll to providing retirement benefits, a plan that provides relatively larger benefits to its younger, short-service employees will inevitably have less money available to provide benefits to its long-service employees. Thus, the cash balance approach involves a trade-off; it is not a panacea. An indication of the extent to which the cash balance accrual pattern makes sense for a given employer can be gleaned from the employer's response to the following two questions:



## THE CASH BALANCE PENSION PLAN

1. Should the amount of benefits to short-service employees be minimized in order to provide maximum benefits to long-service employees at the lowest possible cost? Or alternatively,
2. Should the amount of benefits to employees, as a percentage of current pay, be independent of employees' relative age?

**FIGURE 1**  
**Accrual and Cost for a Typical Cash Balance Plan**  
**(Annual Cost of Benefit Earned as a Percentage of Current Pay)**



Obviously, there is no right or wrong answer to these questions. Those answering the first question affirmatively would probably lean toward a final-average-pay format as the primary retirement vehicle, whereas those affirmatively answering the second question would be likely to view the cash balance approach more favorably. The essential issue here is "what is fairest to employees?" and those employers adopting the cash balance approach have concluded that younger employees should not be penalized because of their age, particularly in view of the increasing importance of portable retirement benefits.

Clearly, the crucial distinction between the cash balance approach and more traditional approaches insofar as the accrual pattern is concerned centers on this extra money expended on those who leave early. A company must feel comfortable with this factor and must be convinced that the advantages of cash balance are worth the investment. It should be noted that this circumstance is not the objective of cash balance design, but results merely from the levelized accruals that these plans provide—and it only becomes a perceived “problem” when contrasted with the minimalist benefits provided by traditional plans. Moreover, since cash balance accruals typically parallel the allocation patterns commonly found in many defined-contribution plans, a company comfortable with the incidence of cost in that context presumably should be comfortable with the cash balance context. Note, however, in the discussion under “Plan Design Considerations” and “Transitional Considerations” that there are ways to structure the accrual pattern of a cash balance plan to more closely resemble that of a traditional plan, although some of the basic simplicity of the cash balance approach may suffer as a consequence.

### DESIGN CONSIDERATIONS

A cash balance plan can be configured in a number of ways, depending on the employer’s goals and those of its work force. Accordingly, a decision to adopt a cash balance plan is only the first step in a process in which a number of issues—each entailing an array of choices—must be addressed. These issues are discussed in the following paragraphs.

#### 1. Pay-Related Credits

Several options are available for pay-related credits. Under the simplest approach, the credits are determined by using a straightforward formula, often a flat percentage of pay. In addition, the credits can be integrated with social security (for example, 3% of the first \$10,000 of pay, plus 6% of pay in excess of \$10,000). Or the amount of credits can vary to a certain extent with increasing age or service (for example, 4% credits during the first 10 years of employment and 5% thereafter). Employers with heavier-than-normal turnover may find that such service-weighted benefit formulas help offset the extra costs associated with early leavers. In any event, the decision as to the amount of credit will be a function of many factors, such as:

- The employer’s retirement income goals and objectives
- The benefit levels of the plan being replaced
- Benefits available from an accompanying savings plan
- The cost of any benefit minimums or grandfather provisions
- The employer’s financial condition, and its related need or desire to reduce costs or eliminate redundant benefits
- Competitive pressures.

Before establishing the amount of the pay-related credits, it is generally advisable to run a series of detailed retirement-income projections for a broad cross section of employees under alternative economic scenarios. Such projections can help to ensure that the plan’s accrual pattern is consistent with management’s retirement-

income objectives. To avoid the potential for benefit redundancy, such projections should take into account social security as well as savings plan balances. Differences in company subsidies for active and retiree medical costs may also be significant.

## **2. Interest-Related Credits**

The plan must specify the basis for interest credits. The higher the interest credit, the higher the level of benefits and attendant plan costs. Typically the interest credit is pegged to a readily available, externally determined rate, such as a one-year Treasury bill rate or a rate related to the CPI. Alternatively, some employers choose a rate that is acceptably competitive with short-term rates available to employees elsewhere. In any case, there may be an alternative minimum or maximum basis for unusual circumstances. Note that since the combination of the pay-based credits and the interest-related credits determines the actual benefit payable, employers have a great deal of flexibility in selecting these two elements.

## **3. Grandfathering and Minimum Benefits**

As we have seen, traditional pension plans concentrate more of their financial firepower on older employees than do cash balance plans. Therefore, without special treatment, conversion of a traditional plan to a cash balance plan may result in lower benefit accruals in the future for older participants. Grandfathering of prior plan benefits for those who would be adversely affected by the change can alleviate this problem. One common approach along these lines is to incorporate as an integral part of the plan a transitional provision ensuring that older employees, such as those over age 50 on the date of the conversion, will retain at least the benefit they would have received under the formula of the plan being replaced.

Similarly, without any special treatment, cash balance plans may not satisfy the benefit expectations of early retirees and late entrants. Minimum pensions can alleviate these problems. They are especially appropriate if a prior plan subsidized these groups and the employer wants to continue that practice. Where minimum pensions are desired, they too can be made an integral part of the plan.

## **4. Opening Balances**

If the cash balance plan is replacing a preexisting plan, the determination of the amount of the opening balance is critical. To assure that the new plan is well received, a generous approach is often advisable. While there is a range of alternatives, the most straightforward approach is to compute the present value of each employee's accrued pension benefit, using current interest and mortality rate assumptions such as those already being used in the plan to pay lump sums. Other things being equal, since the process involves the determination of the present value of the accrued pension benefit, the lower the interest rate, the greater the opening balances will be. If the opening balances are calculated on a subsidized basis, less elaborate grandfathering will be required. On the other hand, if special care is not taken, an overly generous conversion could result in windfalls for employees who leave the company shortly after the plan is amended.

## 5. Vesting

Most cash balance plans have adopted the conventional five-year cliff-vesting approach. However, some companies that are attracted to a cash balance concept opt for an even more liberal vesting schedule, often to dovetail the cash balance plan with more aid vesting that they may have in their savings plan. Furthermore, the vesting provision could vary according to the portion of the plan involved—for example, more rapid vesting for regular balances, but less rapid vesting for minimum pensions (subject, of course, to the Code's minimum vesting rules).

## 6. Benefits at Retirement

By its nature, a cash balance plan will be communicated to employees with reference to individual balances. Although this does not necessarily mean that benefits must be available as lump sums, availability of a lump-sum distribution is usually one of the attractions of the cash balance concept. Of course, since the plan is qualified as a pension plan, the normal form for a married employee must be a joint-and-survivor annuity, unless the spouse agrees otherwise.

In any case, a cash balance plan is well equipped to offer annuity options. The retiring employee has a certain amount of money to spend, and the plan can make a variety of choices available. The choices are likely to be attractively priced, since the plan has no selling expense or profit as would an insurance company. Available options typically would include straight-life annuities, various joint-and-survivor options, and lifetime annuities with minimum guarantees.

## 7. Benefit Subsidies

Traditional pension plans commonly incorporate subsidized benefits in order to encourage desired behavior on the part of participants, such as early retirement or joint-and-survivor elections. Where the employer has concluded that these subsidized benefits have become cumbersome, expensive, or unfair, the introduction of a cash balance plan may present an opportunity to phase them out or rethink them. On the other hand, employers that wish to facilitate early retirement or joint-and-survivor elections can do so in a cash balance plan by providing attractive prices for these options.

## 8. Early-Retirement Windows

Cash balance plans can be easily adapted to incorporate early-retirement window benefits. For example, the account balance of those who elect the window could be increased by  $X$  percent. Alternatively, accounts could be increased to equal their projected value  $Y$  years hence—such as 5 to 10 years. In either case, the annuity conversion tables in the plan could also be temporarily liberalized to encourage those who prefer monthly income in lieu of the lump sum.

## TRANSITIONAL CONSIDERATIONS

### 1. Potential Problems

As was mentioned previously, to the extent that cash balance plans redistribute benefits from long-service employees to short-service employees, a conversion of a traditional pension plan to cash balance can adversely affect certain employees:

- For older employees approaching retirement, the conversion to cash balance may result in a reduction in projected retirement benefits. They will henceforth be receiving the same incremental benefit values annually as younger employees (not 10 to 20 times greater values as under the prior plan), but will not benefit from the longer duration of compounding interest, to which the younger employees will be inured.
- For mid-career employees (e.g., middle-aged employees with 10 to 20 years of service to their credit), the opening balance of their cash balance account will likely be worth less than what they would have accrued if the cash balance plan had been in effect since their date of hire. These employees can get whipsawed on the other end also; under the cash balance plan, they can no longer expect to receive the higher accruals at the older ages that they had been anticipating under the previous plan.

Figure 2 illustrates such a potential shortfall for an employee who, at date of conversion, is age 45 with 15 years of service. Bar one shows that the traditional final-average-pay plan would provide retirement benefits equal to 317 percent of final pay, with 22 percent earned for past service (15 years) and 295 percent to be earned over future service (20 years). A comparable cash balance plan (bar two) would have quite different benefit values for past and future service—106 percent for past service (instead of 22 percent) and 214 percent for future service (instead of 295 percent).

Thus, the net result of switching to cash balance for this employee, absent any special transition provisions, is twofold, as shown by bar three: (1) He retains the benefit earned under the traditional plan for his 15 years of past service (22 percent from bar one) and, in the future, (2) he will earn regular cash balance benefits (214 percent), so if this employee is to receive payment equal to the traditional plan, the new cash balance plan must find a way to provide additional transition benefits worth about 82 percent of final pay (bar four). Fortunately, there are various ways to accomplish this, as discussed in the following subsection.

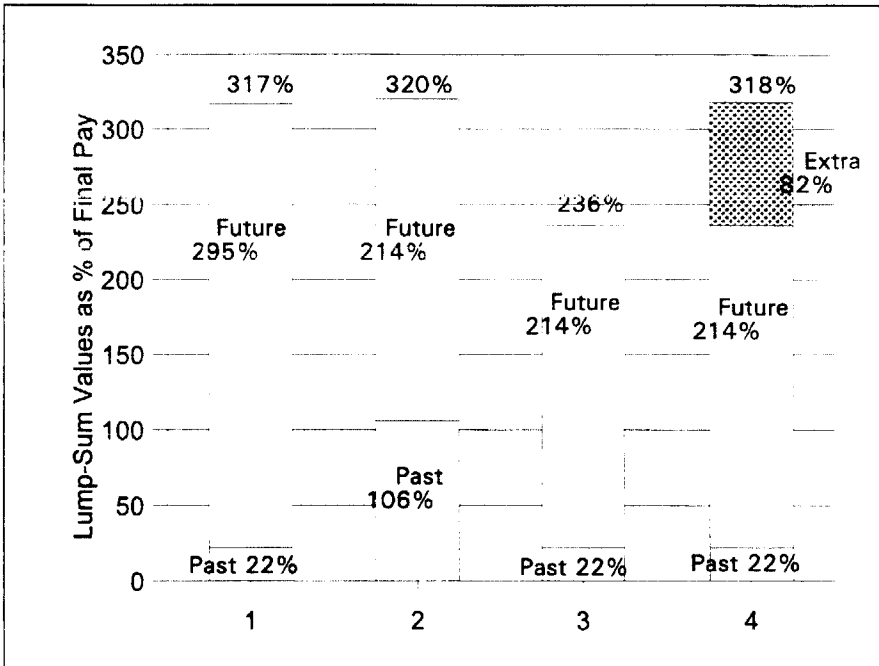
### 2. Suggested Solutions

There are several possible approaches to solving these types of transitional problems:

- The greater the amount credited as the starting balance, the less the likelihood of encountering employee dissatisfaction or retirement shortfalls. Thus, a generous employer can consider computing the initial balance using a somewhat lower interest discount rate, a mortality table that reflects a

somewhat longer life expectancy, or in plans that subsidize early retirement—an early retirement age (e.g., age 62) rather than the normal retirement age of 65. The latter change alone will generally increase initial account values by 25 percent to 33 percent for employees under age 62. In future years, a higher interest credit could also apply to this portion of the employee's account.

FIGURE 2  
Conversion to Cash Balance Plan  
for Employee Age 45 with 15 years of Service



- 1 Final average pay plan only
- 2 Cash balance plan only
- 3 Cash balance plan without transition credits
- 4 Cash balance plan with transition credits

- Alternatively, supplementary additional future-service benefit credits (over and above the regular pay-based credits) can be provided for older, long-service employees. For example, if the regular annual pay-based credits are 5 percent of pay, affected employees might receive an extra 8 percent, or 13 percent in total for the next 10 years. Or, the amount of the supplementary credits could vary based on a "point criterion" (age plus service) at date of

conversion, or some other sliding scale, so as to more accurately target anticipated benefit shortfalls. In such a case, the formula for determining the amount of the supplementation would typically be calculated by reference to a comparison of the old and new plan benefits projected to retirement, and by designing a supplemental credit stream such that its accumulated value will bridge any undesirable shortfalls. Thus, in theory, each employee could have his or her own individual supplemental benefit rate. More commonly, a general pattern emerges that can be smoothed to a simpler, more easily communicated table or scale.

- A more direct approach would be to provide, through a “dynamic grandfather,” that the benefit for adversely affected participants will in no event be less than if the preexisting plan had remained unchanged. Because cash balance plans are defined-benefit plans, the employer can simply underlay whatever minimum benefit is desired, thereby guaranteeing the prior level of benefits. In most cases the natural choice, of course, would be the prior plan’s pension formula, either on a temporary or permanent grandfathered basis.
- A variation on this approach would be to make the benefit comparison between the old benefit formula and the new cash balance formula up front (as of the date of plan conversion), rather than wait until each employee actually retires. This would involve projecting both to retirement and crediting the present value of any projected shortfall to a special “transition account.” If the projection assumptions represent a reasonable estimate of expected future experience (especially with regard to assumed interest credits, pay increases, and retirement age), most employees will be satisfied that a good-faith effort has been made to accommodate them. This approach can eliminate a good deal of future administrative work, as compared with the dynamic grandfather approach.

Of course, regardless of the mechanism chosen to protect employees who would otherwise be adversely affected by the transition, care should be taken to prevent windfalls for those who might terminate shortly after plan conversion. An “earn-out” provision will generally alleviate these concerns.

### 3. The Role of the Savings Plan

The role of any accompanying savings plan should also be considered when evaluating the efficacy of any special transitional measures. While in the past such plans were often adopted without an adequate corporate definition of their role in the company’s retirement program, the great popularity of these plans—and the government’s determination to limit access to savings plan benefits prior to retirement—makes it imperative to include such benefits as a component of the third leg of the well-known three-legged retirement stool (pension, social security, and savings). Some companies might want to beef up savings benefits as a part of the cash balance conversion process, while a few, which may have gone “too far” in liberalizing savings plan benefits at the expense of the pension plan, might consider

moving some future benefits from the savings plan to the new cash balance plan. Because employees will know exactly how much is in their cash balance accounts all during their career and can easily have their accounts projected forward to retirement, those employees who feel they need still greater benefits can ensure benefit adequacy by increasing their pay-ins to the company's savings plan. As intended, this provides a strong cost-sharing inducement for employees, generally on a tax-effective 401(k) basis.

## RECENT DESIGN INNOVATIONS

### 1. Interest Enhancements

A key goal in formulating the cash balance concept in the 1980s was to find a way to make an employer's pension plan as attractive to the work force as its savings plan. Recently, several employers have sought to exceed that original employee acceptance level by designing a plan that it was hoped would be even more popular than the company's savings plan. Noting that the interest earned or credited in their savings plan is probably one of its most visible and appealing characteristics, these employers have given special emphasis to this element in their cash balance plans, by providing "enhanced" interest credits. Since most savings plan participants tend to invest the bulk of their savings in conservative fixed-income investments, these cash balance plans credit a rate that generally exceeds prevailing fixed-income rates.

For example, future-service pay credits could receive an interest credit each year equal to the one-year Treasury bill rate plus 300 basic points, while the past-service part of the account (i.e., the opening balance) could receive a rate equal to 125 percent of the future-service rate. Thus, for example, if the one-year Treasury bill rate were 6 percent, future-service pay credits would receive a 9 percent interest rate while the opening balance would receive an 11.25 percent interest rate. While there is obviously a cost involved in crediting these higher interest rates, it can be mitigated (or in certain cases even eliminated) by some appropriate horse trading. That is, if Company A was originally prepared to offer a 5-percent-of-pay plan, it might decide instead to lower the 5 percent benefit somewhat in order to offset the added cost of the enhanced interest credits. Since both the pay credits and interest credits are, in reality, defined benefits (the costs of which are determined actuarially) a "5 percent pay credit/7 percent interest" plan might cost about the same as a "4 percent pay credit/8 percent interest" plan. For the same reason, the enhanced interest rate does not directly relate to investment fund performance. That is, the pension fund does not need to be expected to earn this higher interest rate.

In addition to making the cash balance plan extremely attractive to employees, enhanced interest credits can also serve other useful purposes for the employer. For example, most plan administrators would love to be rid of grandfather provisions in their plan. Often these are a bewildering tangle of holdovers resulting from prior plan amendments and various acquisitions, and their administration generally requires a disproportionate amount of time and expense. An enhanced interest approach may, during transition to a cash balance plan, permit such grandfathers to



be eliminated, simply by determining empirically the amount of extra interest required to keep grandfathered employees whole. Although this provides a somewhat less ironclad guarantee than the burdensome and ongoing grandfather minimum calculations, if the employer makes its best good-faith effort in determining the required extra interest (e.g., by utilizing realistic assumptions as to future pay increases and retirement ages) and openly communicates the process, affected employees will usually find the approach acceptable.

## 2. Floor Benefits

Many employers, for various reasons stemming from both the human resources and financial sides of the house, are anxious to move completely away from a traditional plan, but others who may appreciate cash balance's virtues are not yet ready to do so. For employers in this latter group a "floor benefit" approach may be appropriate, whereby a cash balance feature is added to the traditional plan as a minimum, or floor, benefit. Certainly, there is nothing new about a defined-benefit plan having multiple benefit formulas.

Under this approach, as employees begin to enter the retirement zone, particularly fast-track individuals, they will retain the higher benefit accruals of the traditional plan, while younger employees will enjoy the higher benefit values of the cash balance floor. Conceptually, this arrangement is merely an extension of the dynamic grandfather approach often used when a traditional plan is converted to cash balance, whereby designated employee groups already in the retirement zone receive the greater of the old and new benefit formulas. The floor approach simply extends this concept to all employees, thus clearly guaranteeing that no employee can ever be disadvantaged by the change in plan.

An ancillary advantage of this approach is that it should help nondiscrimination testing, since younger employees are predominantly non-highly compensated and will now be receiving the higher benefit accruals of the cash balance floor. Thus, if the traditional plan by itself was having trouble passing the tests, adding such a floor benefit is likely to help it pass.

It should be noted that while the approach is often considered, since it provides employees with "the best of both worlds," it is less often adopted because of the added cost and administration involved. Obviously, a dual-formula plan will cost more than either benefit formula by itself, and most employers are reluctant to add a floor which, in their view, provides more to the people who do not stay to retirement.

## 3. Forced Retirement Savings

The company's objective in this cash balance variation is to increase retirement benefits without adding to total compensation costs—a goal that many employers would love to achieve. It can be accomplished rather easily—for those employers willing to bite this bullet—by simply moving money from the left pocket to the right pocket. In this case the employer moves a portion of annual pay increases to

the pension plan, as cash balance subaccounts, so that cash is traded for pension benefits.

Let us suppose, for example, that Company *B* was expected to grant annual pay increases, which are projected to average about 5 percent over future years. It now decides to force 40 percent of those future raises (2 percent of pay) to be saved for retirement by adding cash balance subaccounts to its pension plan, which will be credited with 2 percent of pay each year. So, in the future, pay raises will average only 3 percent instead of 5 percent but pension plan benefits will be increased by 2 percent of each year's pay (plus interest). Notice that the new subaccounts can be added to either a traditional or a cash balance plan.

This scenario is probably most effective for the employer when the pension plan is overfunded. Then the new subaccounts can be credited with 2 percent of pay without requiring any pension contribution, so that the change has generated a positive cash flow equal to 2 percent of payroll. Furthermore, the employer realizes Federal Insurance Contributions Act savings with respect to employees whose salaries are less than the social security taxable wage base. For the long term, however, this approach faces some potentially challenging issues:

- Will corporate discipline be strong enough to permanently maintain a reduced level of pay increases? If not, Company *B* has just increased its total long-term compensation costs by 2 percent of payroll.
- In a related vein, what about competitive pay pressures? Giving 3 percent pay increases rather than 5 percent means that after 10 years this company may be about 20 percent below competitive levels. Given that employees tend to value cash over pension, will pointing to the accumulated 2 percent pension subaccounts be an effective response to employees?
- Unless the subaccounts are fully and immediately 100 percent vested, employees have obviously lost some overall compensation value through the exchange.
- Theoretically, it would appear that there may be some loss of individual equity because of future pay raise compression. That is, all those employees who would have gotten pay raises of less than 2 percent (or a pay decrease) will now receive the same 2 percent (through the pension plan). To keep things whole and to pay for this option, the company would have to further reduce future pay increases for those who would have otherwise been entitled to pay increases in excess of 2 percent.
- Will employees suffer some future erosion with respect to other pay-related benefits, such as life insurance, disability, or severance? In addition, if the underlying pension vehicle is not a cash balance plan but rather a traditional final-average-pay plan, it is probable that some net pension loss will occur (since the subaccounts added are based on career average pay rather than final

average pay). In such situations an employer could decide to “gross up” the subaccounts on some roughly equivalent bases (e.g., provide 2.5 percent rather than 2.0 percent).

#### 4. A Severance Pay Variation

In a variation on the cash balance theme that is sometimes call a “pension equity plan,” the basic pension benefit is still defined as a lump sum, but it is one based on a multiple of pay at retirement. For example, if the plan provided a pay credit of 12 percent for each year of service, after 30 years an employee would retire with a lump sum equal to 360 percent of final pay, a 3.6 multiple.

In examining this approach, it becomes clear that there is really no “account” per se. Further, there is no explicit interest rate operating: The implicit interest rate is, in effect, equal to the employee’s annual pay raise percentage. Whether this severance pay approach (which lacks an explicit account and an explicit interest credit) will prove popular is difficult to foresee at this point because it is a relatively new variation, but it adds another useful tool to the benefit designer’s toolbox.

As employers consider this variation, they should bear in mind a few important considerations. On the plus side there is ease of communication and administration. Moreover if an employer prefers benefits related to final pay rather than career pay, this plan may be ideal. However, risks include a potential for less predictable growth in employees’ benefit values and, by the same token, costs that are likely to be less stable than in a typical cash balance plan.

#### 5. The Postretirement Health Care Subaccount

Today’s employers are looking for ways to redesign their postretirement medical plans in order to ameliorate the burdensome expense caused by (1) the lack of cost control over medical inflation, and (2) the disproportionate benefit allocations of most plans (i.e., based on marital status, length of service, and early versus later retirement). The postretirement health care subaccounts (PHCSs) discussed here are not intended to solve these huge problems, but rather are intended to address a smaller but specific concern: accumulating the means to permit retired employees to pay for the budgetable portion of their postretirement medical expenses.

Those budgetable expenses are simply the premiums that retired employees (including those in good health) will have to pay to maintain their retiree health care coverage. These include premiums for Medicare Part B, for their own employer’s plan (significant cost-shifting is occurring at present and is likely to continue), for an American Association of Retired Persons or other supplemental coverage plan, and for copayments and deductibles. Such premiums are likely to be material, running well over \$1,000 per annum in some cases (in today’s dollars). At retirement, a PHCS (again in today’s dollars) on the order of \$10,000 to \$15,000 would be roughly adequate to meet such needs and would contribute significantly to a retiring employee’s peace of mind.

A PHCS can be added to either a traditional plan or a cash balance plan as a direct "add-on" or, in certain cases, as a "carveout." The former merely adds the subaccounts as an additional pension plan benefit. To illustrate the latter approach, consider Company C, which is in the process of changing its traditional pension plan to cash balance, with 6 percent annual pay credits to employees' accounts. In communicating the new plan to employees, Company C announces that the first one percent of pay (or \$X) going into the accounts will be dedicated to a subaccount to be used solely for postretirement medical expenses such as premiums. Company C has now established a PHCS for each employee, without adding to the overall cost of its new plan.

Furthermore, if the company decides to operate the subaccounts under the aegis of Section 401(h) or the Code, then a portion of the new cash balance benefit (the first one percent or \$X) has been converted from a taxable benefit to a nontaxable one that is worth about 20 percent to 30 percent more to most employees, at no added cost to Company C. Should the company deem it appropriate, it could also decide not to vest the subaccounts until employees reach retirement age, in which case a dollar of PHCS benefit is likely to cost significantly less than a dollar of regular cash balance benefit. If the PHCSs are operated under Section 401(h), then they are, of course, subject to various specified requirements, including the restriction that funding of the subaccounts must come from future company contributions (not from existing pension fund surplus), with such contributions limited to one third of the normal pension cost (25 percent of the total normal cost).

Of course, an employer may choose to add PHCSs simply as additional pension plan benefits, in which case all the usual pension rules apply. That is, they are then taxable benefits, which employees can utilize for any purpose and they are subject to the minimum vesting rules for pensions (but existing pension surplus can be applied to fund the PHCSs). Both approaches—as 401(h) benefits or as regular pension benefits—are intended to attack a specific area of postretirement employee expense, namely those that are budgetable. Once instituted, however, they also establish an "account" mentality, which could prove helpful should the company decide in the future to institute more fundamental changes, such as moving away from its traditional postretirement medical "entitlement" plan.

#### 6. Discretionary Bonus Credits

From a financial viewpoint, one of the great attractions of profit-sharing plans is their ability to enable the company to contribute more in good years and less in poor years. Since defined-benefit plans (including cash balance plans) are funded actuarially, this flexibility is absent (except to the extent provided within the IRS's maximum and minimum contribution limitations). However, adding a discretionary bonus feature (in the form of additional pay credits) can add significantly to funding flexibility and can inject an element of profit-sharing into the pension plan, thereby providing the company with a greater measure of cost control.

Such additional pay credits would be declared periodically, via a plan amendment by the company in advance of the plan year, and would be loosely tied to some

appropriate measure of corporate performance. These would, of course, be in addition to the regular basic benefit of the plan. For example, if regular pay-related credits equal 5 percent of pay, the additional credits might range from 0.5 percent to 1.5 percent of pay, as declared periodically by the company.

Would this approach violate the well-known IRS prohibition against conditioning defined-benefit plan benefits on profits? If properly designed and implemented, there is a good chance that the answer would be “no.” However, the way in which the bonus credits are linked to profits and their relative magnitude would, of course, be key.

### 7. The Annuity-Only Plan

Since balance plans arrived on the scene a decade ago, it has become clear that while many employers like lump sums, others strongly oppose them. What is more surprising, however, is that some of the latter group, for various reasons, nevertheless like the cash balance concept. While at first this may appear contradictory, employer resistance to lump sums often stems from various legitimate business reasons. Paternalism still runs strongly in some corporate cultures and, noting that the savings plan already pays a large chunk of a retiree’s benefits in a lump sum, these employers voice concerns about their employees’ retirement security. Still others are worried about their employees’ ability to properly manage large lump sums—not only at point of retirement but in later years as well. And, in some cases, financial managers are concerned about the possible effect on the pension fund of lump-sum payouts.

While a cash balance plan without lump sums may sound like an oxymoron, some employers nevertheless believe that many of the major advantages of a cash balance plan are not necessarily linked to lump sums. For example, the level benefit accruals, which provide equal pay for equal work regardless of age, are attractive to some. Other advantages include the high visibility of the account, its explicit growth (communicated through periodic benefit statements), and the fact that employees always know exactly where they stand as to the value of their pension benefit.

Is such a plan practical? We have already seen plans adopted successfully that limit the amount that may be taken in a lump sum (e.g., 50 percent), but not permitting lump sums at all is a tougher call. On balance, provided that the plan is properly communicated, it may be feasible. In this situation an employer may want to consider adding certain features that would enhance employee acceptance, such as subsidizing annuity conversion rates as a quid pro quo for lack of a lump-sum option. Furthermore, the plan would be a socially desirable one since it would provide full portability. A terminating employee would not be able to receive his or her account and spend it, rather it would have to remain in the plan, where it would continue to grow with interest to provide annuity income at retirement. It is likely, of course, that employee pressure to permit at least some part of the account to be taken in cash would build up over time, and whether an employer would be able to resist it (or would want to) would depend on circumstances at that time,

including an analysis of whether up to that time the plan had been successful in terms of meeting employees' retirement needs.

### 8. The Flexible Cash Balance Plan

It is clear that the plans of many employers will not meet the safe-harbor requirements of the final IRS regulations, and that annual number crunching will be needed to satisfy the general test requirements of the 401(a)(4) nondiscrimination rules. In a cash balance setting, flexibility under these rules will most likely allow some variation in the amount of annual benefit accruals as well as a certain degree of discretion in the allocation of benefit accruals to plan participants.

Working with the intended allocations for the coming year, the flexible plan does its preliminary testing prior to actual allocation, so that in advance the employer knows the answers to such questions as:

- Do the contemplated allocations pass the test and, if not, what are the changes required to enable them to pass?
- By what margin is the test passed and is there room to modify allocations for other design purposes?

While one might surmise that a plan with a variable benefit formula would stand little chance to be a qualified plan, analysis suggests that many—and possibly all—IRS qualification requirements would be satisfied by such a plan. Of course, a key issue is the concept's practicality and acceptance by employees, given the potential variability in annual allocations. In these times employees cannot be expected to live with a "trust me" approach to pensions. This situation could be addressed by adding to the flexible plan a floor benefit, such as 2 or 3 percent of pay, or by adding a minimum benefit guarantee.

### 9. A Word of Caution

The design innovations just discussed are only some of those currently being considered for cash balance plans, and in some cases for traditional plans as well. A word of caution is in order, however. Because these approaches are new and must comply with the full array of the IRS's new and complex regulations concerning nondiscrimination and coverage (some of which are still to come), what works for one plan may not work for another. Employers should proceed cautiously, with a complete and thorough analysis before any plan changes are adopted. A discussion of legal considerations, as they exist today, follows below.

## LEGAL CONSIDERATIONS

### 1. General Qualification Requirements

Cash balance plans are qualified under the applicable requirements of the Code as defined-benefit plans. As such, they are subject to the same requirements imposed by ERISA and the code that applies to such plans. Note, however, that applicable

law evolved over the years with traditional qualified plans, not cash balance plans, in mind. Attempts to apply the law to cash balance plans at times seems like fitting a square peg into a round hole.

Among the qualification rules that apply to cash balance and other defined-benefit plans are the following:

- Minimum participation rules that limit the age and service requirements that an employer can impose as a requirement of participation in the plan
- Coverage and nondiscrimination rules designed to prevent the plan from discriminating in favor of highly compensated employees
- Vesting rules, which limit the period of required service before an employee earns or becomes entitled to a nonforfeitable benefit under the plan
- Accrual rules, which limit the extent to which a plan may backload benefit accruals
- Rules providing limitations on the amount of contributions and benefits that may be provided through qualified plans on behalf of plan participants
- Minimum funding rules designed to insure the solvency of defined-benefit pension plans
- Minimum distribution rules, governing the timing, duration, and form of benefit payments.

In addition, cash balance plans are subject to ERISA, including the reporting and disclosure requirements of Part 1 of Title 1 of ERISA, the fiduciary responsibility provisions of Part 4 of Title 1 of ERISA, and the plan termination insurance provisions of Title IV of ERISA.

At this juncture, most cash balance plans have been amended to comply with the final regulations under the Tax Reform Act of 1986, and many have already received favorable determination letters. To the extent that legal issues relating to cash balance have yet to be conclusively resolved, government officials have stated publicly that they look favorably on the cash balance concept, and that any inconsistencies in the current law insofar as it relates to cash balance plans will be favorably resolved. Consistent with these pronouncements, the final nondiscrimination regulations specifically acknowledge cash balance plans, as evidence of the fact that the IRS recognizes cash balance as a viable qualified pension plan format.

## **2. The Final Nondiscrimination Regulations**

Although the final nondiscrimination regulations contain a cash balance safe harbor if certain conditions are met, few if any plans are designed to be able to take advantage of it. This safe harbor is found in the "cross testing" rules (i.e., special

rules under which defined-benefit plans are tested on the basis of equivalent contributions and defined-contribution plans are tested on the basis of equivalent benefits). Under this safe harbor, a cash balance plan may be tested on the basis of the hypothetical allocation formula used to determine an employee's cash balance account, rather than on the actual benefits provided under the plan. A safe-harbor formula would have to be either a uniform allocation formula, or a formula that would pass the general test under the Section 401(a)(4) defined-benefit rules (assuming that the compensation-related credits were actual contributions to a defined-contribution plan). Unfortunately, certain special safe-harbor requirements would straightjacket cash balance plans into designs that are impractical. Therefore, cash balance plans almost invariably demonstrate compliance with the applicable nondiscrimination rules by satisfying the general test. This alternative path to compliance involves the calculation of benefit accrual rates for each participant and a comparison of relative coverage at each rate by the highly compensated and nonhighly compensated employees. As compared to traditional plans, cash balance plans rarely have trouble demonstrating compliance with the Section 401(a)(4) general test, primarily because the annual current-service credits to accounts are typically stated in terms of a fixed percentage of compensation. Generally speaking, such an age-neutral accrual pattern tends to be relatively more generous to younger employees (who tend to be relatively lower paid). Traditional plans (e.g., final-average-pay plans) typically have more trouble with the test because their accrual pattern is inherently more backloaded.

### 3. IRS Provides Long-Awaited Cash Balance Guidance

For several years the benefits community has been anticipating guidance from the IRS relating to the operation of cash balance plans. One issue of particular importance has been whether the IRS would require that, under certain circumstance, an employee receiving a lump-sum distribution be paid more than the account balance to fully satisfy the plan's obligation.

IRS Notice 96-8 expresses the IRS' intention to publish regulations in the future on that issue, sets forth the agency's preliminary thoughts on what the guidance will be, and asks for comments. The Notice indicates that the IRS is open to suggestions before it issues proposed regulations. But, if most existing cash balance plans are not to be adversely affected and if employers are to be allowed adequate flexibility in designing such plans in the future, the regulations will need to clarify and expand on the proposed guidance.

- (a) *The Interest Credit Basis.* An important element in cash balance plans is the rate of hypothetical earnings by which account balances will grow. This "interest credit" basis, which must be defined in the plan document, is commonly tied to a variable index such as the rate on one-year Treasury bills.

In 1991, when a "safe harbor" was introduced for cash balance plans under the Section 401(a)(4) nondiscrimination regulations, the IRS took the position



that the minimum lump sum computation rules of Internal Revenue Code Section 417(e) ("417(e)") apply to cash balance plans. The preamble to those regulations suggested that 417(e) applies to cash balance plans generally, not just to plans that wish to comply with the safe harbor.

The 417(e) calculation under the Section 401(a)(4) safe harbor works as follows: First, the employee's cash balance account is increased by interest credits between the employment termination date and the date on which the employee would reach the normal retirement age stated in the plan. This increase is calculated on the assumption that the interest credit rate in the year of termination remains unchanged until the employee's normal retirement age. Next, the projected lump sum amount is converted to an actuarially equivalent annuity. Finally, such annuity is converted back to a lump sum value at the employee's current age using assumptions that satisfy 417(e).

Before the 1994 GATT legislation, the 417(e) calculation commonly could have resulted in a lump sum distribution greater than the employee's cash balance account, especially if received at a young age where the required 417(e) interest rates (i.e., PBGC interest rates) were very low. Yet, very few cash balance plans have reflected that calculation and, therefore, pay lump sums equal to the cash balance account in all cases. In fact, many of those plans have received IRS determination letters.

GATT eliminated much of the potential "whipsaw" by changing the required 417(e) interest basis to the rate on 30-year Treasury bonds. Nevertheless, depending on the plan's interest credit basis and the economic environment at the time of a distribution, the possibility of a whipsaw continues to be an important issue.

- (b) *Preliminary IRS Views.* In Notice 96-8 the IRS continues to express the view that 417(e) must be applied to a cash balance plan. However, under the Notice, if certain conditions are satisfied, a plan can pay lump sums equal to the cash balance account without having to perform the projections and conversions to comply with 417(e) and the Section 411 forfeiture provisions.

The relief provided in the Notice applies only to plans that grant the same interest credits both during and after employment—"front-loaded interest credit plans." (Some cash balance plans reduce the interest credit rate upon termination of employment to some extent—the Notice makes it clear that such "back-loaded interest credit plans" must demonstrate compliance with the benefit accrual rules under IRC Section 411(b).) To satisfy this new "safe harbor," a plan's interest credits must be determined with reference to one of several specified indices, with a maximum permitted margin:

<i>BASIS</i>	<i>MAXIMUM MARGIN</i>
Discount rate on 3-month Treasury bills	1.75%
Discount rate on 6- or 12-month Treasury bills	1.50%
Yield on 1-year Treasury Constant Maturities	1.00%
Yield on 2- or 3-year Treasury Constant Maturities	0.50%
Yield on 5- or 7-year Treasury Constant Maturities	0.25%
Yield on 10- or more year Treasury Constant Maturities	0.00%
Annual rate of change in Consumer Price Index	3.00%
PBGC immediate interest rate	0.00%

For example, a “front-loaded” plan would be deemed to satisfy 417(e) if its interest credit basis is the yield on one-year Treasury Constant Maturities plus a margin not greater than 1.00%. However, if the margin for this plan were higher than 1.00%, the 417(e) calculation would apply at the time the employee’s lump sum distribution is made. If that calculation resulted in a lump sum in excess of the cash balance account, the higher amount would have to be paid.

- (c) *Open Issues.* There are many substantive, technical, and policy issues that should be addressed before the IRS issues regulations on this matter. Some of the more important ones are as follows:
- *Level of Maximum Margins.* Presumably, the maximum margins in the Notice were developed by looking at the historical relationship between the yield on 30-year Treasury bonds (i.e., the GATT 417(e) basis) and the discount rates and yields on other Treasury securities. An analysis of these relationships suggests that higher margins could easily be justified.
  - *Fixed Minimum Rates.* Many cash balance plans that use a variable index for interest credits (e.g., one-year Treasury rates) also have a specified fixed minimum credit (typically 4% or 5%). The safe harbor in the Notice does not address such a fixed minimum credit.
  - *Other Rate Bases.* The Notice solicits suggestions for other safe harbor indices. For instance, some cash balance plans set interest credits equal to the investment return on a published fund or index such as the return on the S&P 500. The direction the IRS seems to be taking may not allow the use of such an interest credit under a 417(e) safe harbor.
  - *Ad Hoc Interest Credit Increases.* Some plans prescribe an interest credit basis that complies with the safe harbor, but, from time to time, the plan is amended to specify a higher interest rate credit for a particular year. The Notice does not address this situation.

- *Annuity Conversion Bases.* The Notice discusses restrictions on the actuarial basis for converting account balances to annuities, although it is not entirely clear when such restrictions may apply. If, in order for an interest credit basis to satisfy a safe harbor (and avoid the whipsaw calculation), the annuity conversion basis must produce annuities no higher than those based on the 417(e) interest and mortality assumptions, the unfortunate result would be the inability to “subsidize” annuities.
- *Transition Issues.* When regulations are issued, some plan sponsors likely will want to make changes to come within a 417(e) safe harbor. While the Notice indicates that regulations will be applied prospectively, an important issue is whether a plan that changes its interest credit basis to one that is (or may be) lower than the former basis must “protect” existing account balances on the former basis. The IRS is looking for suggestions in this regard. Hopefully, the proposed regulations will provide some flexibility in applying the anti-cutback rules in order to avoid the administrative complications that otherwise would occur.
- *Good Faith Compliance and Pending Determination Letters.* Under the Notice, for periods before the issuance of final regulations, plans must comply with a reasonable good faith interpretation of the applicable law and existing guidance. Given the lack of existing guidance, it is probably unlikely that the IRS will examine past practice too closely. Plan sponsors that received favorable determination letters under the 1986 Tax Reform Act probably will want to wait until final regulations are issued before making any changes that might be required. It is not yet clear how IRS agents who have pending requests for cash balance determination letters will react to the Notice. Presumably, at least they now will approve plans that satisfy the Notice if there are no other outstanding issues.
- *Plans That Do Not Comply with a Safe Harbor.* The Notice suggests that, if a plan’s interest credit and annuity conversion bases do not satisfy a safe harbor, whipsaw calculations have to be made to determine whether a lump sum amount more than the cash balance account must be paid. In making the whipsaw calculation, a plan will have to specify an assumption for projecting interest credits from termination of employment to normal retirement that does not understate the expected future credits that the employee would be foregoing by taking a lump sum. The Notice does not indicate what the standards might be for determining that assumption.



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