



Financial Accounting Treatment of Market-Return Cash Balance Plans

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Authors:

Lawrence J. Sher, FCA, FSA, EA, MAAA, Working Group Chair
James G. Berberian, FCA, ASA, EA, MAAA
Stephen S. Breeding, FCA, FSA, EA, MAAA
Bruce Cadenhead, FCA, FSA, EA, MAAA
Stephen N. Eisenstein, FCA, FSA, EA, MAAA
Andrew C. Etheridge, FCA, FSA, EA, MAAA
Eric A. Keener, FCA, FSA, EA, MAAA
Tobiah Mintz, FCA, ASA, EA, MAAA, CFA
John A. Potts, FCA, ASA, EA, MAAA
Maria M. Sarli, FCA, FSA, EA
Arthur M. Scalise, FCA, ASA, EA, MAAA
David Scharf, FCA, EA, MAAA
Derek A. Scott, FCA, ASA, EA, MAAA

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Abstract:

The Pension Protection Act of 2006 authorized the adoption of true “market-return” cash balance plans – i.e., plans that credit interest based on the returns of specified assets, such as the plan’s own assets or the assets of one or more plan specified mutual funds or exchange-traded funds. Hundreds of these designs have been adopted since then, albeit mostly by sponsors not subject to U.S. Generally Accepted Accounting Principles (GAAP). Many other employers subject to GAAP have explored these designs but have been deterred by the prospect that their auditors may interpret the accounting rules in a way that does not faithfully represent the economic liabilities or costs of the plan. To address this situation, we present recommendations for how employers might apply the accounting rules to result in market-based measurements for market-return cash balance plans. We leave open the possibility of seeking guidance from the Financial Accounting Standards Board (FASB) if auditors are reluctant to accept market-based measurements for market-return cash balance plans without any further FASB guidance.

In 2004, FASB recognized that accounting rules being applied in practice for cash balance pension plans, particularly plans “with a market or market-related (variable) interest crediting rate,” did not reflect the true economics of these plans. FASB tentatively approved changes in these accounting rules, but the changes were never finalized, and the issue remains unaddressed.

FASB’s decision in 2004 to defer any action, as well as its subsequent decision in 2014 to continue to defer action, has resulted in variations in accounting treatment among employers that have adopted market-return cash balance plans.

This paper first provides background information and the rationale to seek a market-based approach for determining the obligations and costs under market-return cash balance plans. Then, we provide alternative approaches that we believe would faithfully represent the true economics of these plans.

Introduction

Most cash balance plans sponsored by companies that comply with GAAP provide interest credits to participants’ notional accounts using rates that vary from period to period (typically, annually) under a plan specified basis.¹ Historically, the predominant variable basis has been the yield on a specified high-quality fixed income security (e.g., 30-year Treasury bonds). While the resulting interest crediting rates under such a basis tend to be market-related, the rates (e.g., current bond interest rates with a guarantee of principal) generally are not achievable in the securities markets and therefore cannot be hedged by actual plan investments.²

¹ Based on a 2018 survey conducted by October Three Consulting LLC, only 15% of the 1,069 cash balance plans covering at least 100 participants provide fixed interest crediting rates (e.g., 5%). The percentage is even lower when considering only the larger plans, which are the most likely to be sponsored by companies subject to GAAP. <https://connect.octoberthree.com/hubfs/cash-balance-plans-2018-survey-and-trends-october-three.pdf>

² The purchase of a 30-year Treasury bond will not hedge a cash balance account that receives interest based on the yields on such a bond. The actual bond will increase or decrease in market value based on changes in market interest rates. For example, when market interest rates on long-term Treasury bonds increase, the value of the actual bond will decrease but the cash balance account balance will actually increase due to the resulting higher yields.

There recently has been heightened interest among GAAP compliant companies in “market-return” cash balance plans, under which interest is credited based on the returns on actual investments.³ In such a plan, interest credits vary from one period to another based on the actual investment returns on all or a specified subset of the plan’s assets or on one or more specified outside funds, such as mutual funds or exchange-traded funds. While, technically, a “hybrid” defined benefit (DB) plan,⁴ a market-return cash balance plan closely resembles a defined contribution (DC) plan, from both employer and employee perspectives. An open question is whether, for financial accounting purposes, a market-return cash balance plan should be treated like a traditionally-designed DB plan, like a DC plan, or if some other approach is appropriate given the hybrid nature of the design. We note that employer interest in market-return cash balance plan is likely to increase in light of recent IRS guidance that would permit many existing cash balance plans to be easily converted into market-return plans.

In considering different approaches, we examined fundamentals, particularly in light of FASB’s preference for market-based measurements, including its goal to enhance the relevance and representational faithfulness of the employer’s results of operations and financial position.⁵ We concluded that applying the DB accounting rules to these plans based on how they have been applied to other (i.e., non-market-return) cash balance plans will produce irrational and inappropriately volatile results that are inconsistent with a market-based measurement. We also concluded that while applying the DC rules is more consistent with a market-based measurement, at least in determining pension obligations before participants’ retirement, the results may not be entirely satisfactory in some cases, for instance where there are material DB features or guarantees. Thus, our recommendation reflects the true hybrid nature of a market-return cash balance plan.

Background

In 1985, FASB issued Statement No. 87, *Employers’ Accounting for Pensions* (FAS 87).⁶ FAS 87 established standards for determining various accounting values primarily for DB plans, notably the projected benefit obligation (PBO) and the net periodic pension cost. FAS 87 also included a brief treatment of DC plans, indicating that the net pension cost for a period is equal to the contribution attributable to service and compensation during the period.

When written, the focus of FAS 87 was on traditionally-designed defined benefit plans (TDBs) – i.e., those that define a pension at retirement based on such factors as service and compensation. Cash balance plans were not prevalent when FAS 87 was being developed: the first commonly recognized cash balance plan was implemented in 1985. However, paragraph 66 of FAS 87 addressed plans that have characteristics of both DB and DC plans:

A pension plan having characteristics of both a defined benefit plan and a defined contribution plan requires careful analysis. If the substance of the plan is to provide a defined benefit, as may

³ This development was prompted by provisions in the Pension Protection Act of 2006. That law explicitly permits cash balance plans to credit interest based on actual market returns.

⁴ Under ERISA and the Internal Revenue Code, a cash balance plan is characterized as an “applicable defined benefit plan.” Treasury regulations, instead, use the term “statutory hybrid plan.”

⁵ ASC 715-10-10-1.

⁶ Effective in 2009, under the FASB Accounting Standards Codification, FAS 87 (and FAS 88 and 106) falls under ASC 715. For purposes of this article, we refer to FAS 87 when discussing the original language and to ASC 715 when addressing current thinking.

be the case with some ‘target benefit’ plans, the accounting and disclosure requirements shall be determined in accordance with the provisions of this Statement applicable to a defined benefit plan.

Similar language is codified in ASC 715-70-15-2:

A pension or other postretirement benefit plan having characteristics of both a defined benefit plan and a defined contribution plan requires careful analysis. If the substance of the plan is to provide a defined benefit, as may be the case with some target benefit plans, the accounting shall be determined in accordance with the provisions of Subtopic 715-30 or 715-60 applicable to a defined benefit plan and the disclosure requirements shall be determined in accordance with the provisions of paragraphs 715-20-50-1 and 715-20-50-5.

ASC 715 also includes a definition of a cash balance plan. Before the issuance of Accounting Standard Update No. 2020-10, October 2020, the Master Glossary term *cash balance plan* originated from a fact pattern addressed by the Emerging Issues Task Force (EITF) in EITF No. 03-4. That fact pattern involved a cash balance plan that provides interest credits using a fixed interest rate. This narrow scope may have contributed to the confusion in how to account for cash balance plans with variable interest credits and may help explain the variations in practice that have emerged.

The term *cash balance plan* was suspended from the Master Glossary by ASU No. 2020-10. Much of what was included in that definition was moved to a new section 715-20-25, which reads as follows:

25-1 A cash balance plan is a defined benefit plan.

25-2 A cash balance plan communicates to employees a pension benefit in the form of a current account balance that is based on principal credits and future interest credits based on those principal credits.

25-3 In a cash balance plan, individual account balances are determined by reference to a hypothetical account rather than specific assets, and the benefit is dependent on the employer’s promised interest-crediting rate, not the actual return on plan assets. The employer’s financial obligation to the plan is not satisfied by making principal and interest credit contributions – whether in cash or as a hypothetical contribution to participants’ accounts – for the period; rather the employer must fund, over time, amounts that can accumulate to the actuarial present value of the benefit due at the time of distribution to each participant pursuant to the plan’s terms. The employer’s contributions to a cash balance plan trust and the earnings on the invested plan assets may be unrelated to the principal and interest credits to participants’ hypothetical accounts.

25-4 The determination of whether a plan is pay-related and the appropriate benefit attribution approach for a cash balance plan with other characteristics or other types of defined benefit pension plans depend on an evaluation of the specific features of those benefit arrangements. See paragraphs 715-30-35-36 through 35-39, 715-30-55-7 through 55-15, and 715-30-55-127A (Example 8) for guidance on attribution approaches.

The language in section 25-2 clarifies that a cash balance plan under ASC 715 includes plans that credit interest using a fixed rate (e.g., 5%) or a variable rate. A variable rate would seem to include those

based on specified bond or other fixed-income rates (e.g., yields on 30-year Treasury bonds), or on the investment returns on specified assets (i.e., a market return).⁷

We believe that it was appropriate for FASB to broaden the definition of a cash balance plan to reflect existing and evolving practices. However, given that the benefit obligations under market-return cash balance plans tend to be so close to those under DC plans, we believe that their accounting treatment requires *careful analysis*. We begin by reviewing FASB's historical deliberations related to cash balance plans initiated in 2003 and again in 2014.

FASB Consideration of Cash Balance Plans

When considering how ASC 715 should be applied to a cash balance plan, the fundamental question is how to account for a promise that is in many ways like a DC promise but where there are DB elements. Indeed, FASB took up this issue in 2003 and received considerable input from interested parties. FASB did reach some conclusions regarding a cash balance plan that provides fixed-rate interest credits. The Emerging Issues Task Force (EITF) Issue No. 03-4, ratified by FASB at its May 28, 2003 Board Meeting, provided that a cash balance plan with a fixed interest crediting rate (e.g., 5%) is a DB plan that is not "pay-related" as contemplated by FAS 87. This latter attribute led to the conclusion that the appropriate attribution method is the traditional unit credit method, rather than the projected unit credit method.

While EITF 03-4 applied only to cash balance plans with fixed interest crediting rates, the rationale for using the traditional unit credit attribution method would also seem to apply to cash balance plans with variable interest crediting bases. That would include market-return plans, assuming that the DB accounting rules are applicable. Thus, as in applications of the traditional unit credit method to traditionally designed DB plans, there would be no difference between the ABO and PBO. But that leaves an open question: would some kind of projection of future interest credits (but not future principal credits) be necessary or appropriate for cash balance plans that credit interest using variable rates? And, if so, how would the interest rate be determined for making such projections?

At its March 3, 2004 meeting, FASB considered three alternative approaches for measuring cash balance pension obligations:

Alternative 1 (current methodology) would have specified the standard FAS 87 project/discount approach for all cash balance plans, not just plans with fixed interest crediting rates.

Alternative 2 (hybrid approach) would have specified the project/discount approach for cash balance plans with fixed interest crediting rates; for plans with a market or market-related (variable) interest crediting rate, the obligation would be measured by reference to the notional account balance – it would be inappropriate to project unknown future interest credits because

⁷The language in 25-3 appears to exclude from the definition a plan that credits interest based on the rates of return on the plan's own assets. Given that such plans already exist (and are permitted under Treasury regulations), perhaps that language was not intended to exclude those plans from the definition but, rather, to indicate that the interest crediting rate is based on the plan's terms, which rate is not necessarily tied to the rates of return on the plan's assets. For purposes of our analysis, we presume that a plan that credits interest on a participant's notional account based on the rates of return on all or a specified subset of the plan's assets meets the definition of a cash balance plan under ASC 715-20-25.

the only way to produce the necessary cash flows under the plan would be to place an amount equivalent to the notional account balance in an instrument that would pay the market or market-related interest rate.

Alternative 3 (separation approach) would have specified a “walk away” obligation for all cash balance plans, which would effectively be equal to no less than the cash balance account on the measurement date.

At the March 3, 2004 meeting, the Board tentatively approved Alternative 2, i.e., for cash balance plans with a market or market-related (variable) interest crediting rate, the obligation would be measured by reference to the notional account balance rather than projecting and discounting the notional account balance.⁸

For well over a year after the March 3, 2004 Board meeting, FASB continued to consider issues related to accounting for cash balance plans that credit interest using variable rates. However, at its November 30, 2005 Board Meeting, FASB decided to fold this project into a broader project to reconsider the existing guidance on accounting for postretirement benefits including pension benefits. A factor that may have influenced FASB’s decision to fold the project into the broader project was the controversy that emerged over its earlier tentative decision at the October 13, 2004 Board Meeting to require a minimum “walk-away liability” for all defined benefit plans that provide lump sum options – i.e., the minimum PBO would equal the value of the benefits employees could receive if they terminated on the measurement date and took an immediate lump sum (if available).⁹ That controversy was well articulated at the October 13, 2004 Board meeting by one of the Board Members:

She (Ms. Seidman) stated that the pension liability should reflect the amount that a third party would require to take over the obligation (present value). She does not believe that the walk away amount represents the present value of the pension obligation because present value would incorporate assumptions about the expected timing of the payment of the benefit. She does not believe that a third party would assume that all employees would terminate immediately. In addition, the walk away amount would not reflect certain contractual terms such as caps, floors, and spreads above or below a market rate.

In 2014, FASB considered taking up cash balance plans again in light of recent developments, including increasing diversity in practice (i.e., in applying the accounting rules) and the anticipated growth in market-return cash balance plans due to the Pension Protection Act of 2006. But, in late 2014, FASB decided not to proceed, in part because in the case of market-return plans, there were not (yet) many of them sponsored by organizations that comply with GAAP.

In both rounds of deliberations, many of the FASB members expressed an inclination toward DC-like accounting for cash balance plans with variable-based interest credits. However, on both occasions, FASB received push-back on this approach from certain constituents.

Before proceeding with how we believe the accounting rules could be applied to market-return cash balance plans to result in market-based measurements that would more faithfully represent the

⁸ https://www.fasb.org/page/ShowPdf?path=03-03-04_interp_st87.pdf&title=03-03-04_interp_st87.pdf

⁹ https://www.fasb.org/page/ShowPdf?path=10-13-04_fas87.pdf&title=10-13-04_fas87.pdf

economic liabilities and costs of the plan, it is useful to examine how employers have been accounting for traditionally-designed cash balance plans – i.e., those that provided interest credits using fixed rates (e.g., 5%) or variable bond-based rates (e.g., 30-year U.S. Treasury bond yields).

Accounting Practice for Traditionally Designed Cash Balance Plans

The accounting treatment applied in practice to traditionally-designed cash balance plans has been markedly different than for DC plans. Typically, the traditional unit credit attribution method is used.¹⁰ The PBO calculation begins with the participant’s account balance on the measurement date. Such amount is then projected with interest to normal retirement age (and to other ages at which participants are assumed to begin receiving benefits), such future interest reflecting the plan’s interest crediting basis. The resulting projected account balance is then discounted back to the measurement date, using the then applicable FASB discount rate (or rates) – e.g., from a corporate bond yield curve.¹¹ The resulting present value is the PBO. The service cost is the increase in the PBO determined by redoing the calculation adding in the principal credit to be earned in the ensuing year.

If the plan provides interest using a fixed interest rate (e.g., 5%), in accordance with EITF No. 03-4, that rate is used to project the account balance to retirement. But, if the interest crediting rate is subject to variation each year based on specified interest rates (e.g., the yields on 30-year Treasury bonds), the accounting rules generally have been interpreted to require a project/discount approach where the projection rate is based on a “best-estimate” assumption – i.e., reflecting the expected average future interest crediting rate. The best estimate future interest crediting rate would generally change when the plan sponsor’s long-term expectations for future crediting rates have changed. Like for any DB plan, the ASC 715 discount rate will vary from year to year as market interest rates change and should reflect the expected timing of cash flows from the plan.

Without even getting into the details of the calculation, it is clear that this process can result in a PBO that varies considerably from year to year and is different, perhaps materially different, from participants’ notional account balances on any given measurement date.

This paper does not analyze the measurement of the liability for cash balance plans that credit a fixed rate or a market-related rate, e.g., based on a specified bond yield rather than the returns on a specified bond portfolio.

¹⁰ Sometimes the projected unit credit method is used whereby the current account is projected with future interest credits and principal credits to normal (and earlier) retirement ages; the resulting amounts are then discounted back to the measurement date and multiplied by a fraction equal to plan service on the measurement date divided by total projected service at retirement. This approach is required for “pay-related” plans under ASC 715 (and previously under FAS 87), but only in situations where the benefits are significantly backloaded. The use of the projected unit credit method might be rationalized in situations where the pay credit rates rise by age or service, although we note that EITF No. 03-4 (for fixed interest crediting plans) did not introduce any such requirement. Moreover, we do not believe that the projected unit credit method is required for any ERISA compliant cash balance formula because the statutory limitations on the extent to which those plans can increase principal credits by age or service precludes such formulas from being “significantly backloaded.”

¹¹This presumes that participants are assumed to elect lump sum distributions, which is often the best estimate assumption in most actuarial valuations of cash balance plans. If the distribution is assumed to be in an annuity form, the projected account would first be converted to an annuity reflecting the plan’s basis for converting an account to an immediate annuity; the resulting annuity would then be converted to a present value as of the measurement date using the applicable discount rate.

Project/Discount Approach is Highly Problematic for Market-return Cash Balance Plans

The project/discount approach breaks down when a cash balance plan credits interest that is tied to a market rate of return. The underlying promise in such a plan is not some expected projected annuity but is the current account with the right to (unknown) future market-based interest credits. The current economic value of the promise is the current value of the account, regardless of the market-return interest crediting basis. In other words, there is no intrinsic cost or value (beyond frictional costs) of providing a market rate of return.¹²

This assertion is consistent with a fundamental economic principle that can be illustrated by observing that the value of a liability does not change if the investments are changed to less risky or more risky securities. If one buys a portfolio of marketable securities with cash from her checking account, that does not change her net worth, at least initially. While the expected return on those assets will be higher than before, the risk associated with achieving those returns is also higher. From an economic perspective, the two offset one another.

Let's take this example a step further. Say the *expected* return from the portfolio is 6% per year over a given future period. Would she be willing to exchange those assets for a security that is guaranteed to provide a return of the same 6% per year? Currently and at any time since at least the 1980s, she very likely would have been willing to do that. Even though both assets have the same expected return of 6%, the one guaranteeing that return would have a higher market value. This occurs because investors tend to be risk averse – the potential downside of risky assets is given more weight than the potential upside and an “expected” return that is based, perhaps, on historical returns is only an estimate and can vary significantly based on individual judgement.¹³

Thus, the problem with the project (using assumed returns)/discount (using current bond rates) method is that it treats two cash balance plans with two types of interest credits that have the same expected return but where one is based on actual market returns of specified assets and the other on returns that cannot be obtained in the market (e.g., 6% fixed rate) as having the same PBO (all other things being equal).

Another problem is the model produces different PBOs for two different market return interest crediting bases just because they have different expected returns. That is not how the markets work and, therefore, the project/discount model is inconsistent with fundamental economic principles and, we believe, with FASB's preference for market-based measurements.

Take, for example, two cash balance plans of an employer that grant the same principal credits and credits interest based on actual trust returns, but one plan invests in a portfolio that is 60% equities and 40% bonds and the other invests in a portfolio that is 40% equities and 60% bonds. Assuming that the

¹² Our conclusion would be the same for plans that credit the return based on a market index and invest their actual assets differently, and even for unfunded plans. Further, it is this intrinsic value that distinguishes a market-based return plan from one that credits the periodic yields on a specified bond, despite both having uncertain future interest crediting rates.

¹³ Another investor might estimate a different expected return for the stock portfolio. For example, if that investor estimated a return of 10% for the same portfolio, the investment with a 6% fixed and guaranteed return may not seem more valuable than the stock portfolio.

amount contributed to the two trusts each year is equal to the sum of participants' pay credits,¹⁴ these two plans would have the same cash cost to the employer in every year despite providing different benefits to the employees. Therefore, it would seem the two plans should have the same net periodic pension cost each year equal to the sum of the participants' annual principal credits, and the PBO should equal the sum of the participants' account balances. Thus, we do not believe it would be appropriate to determine a higher service cost or PBO for the 60/40 portfolio simply as a result of higher expected future returns.

Effect of Applying the Project/Discount Approach to Market-Return Cash Balance Plan

What would be the effect on a market-return cash balance plan of applying the project/discount approach? Let's say that the projection rate, based on *expected* returns, is 6%. The project/discount method would seem to suggest that interest should be projected to assumed future retirement ages using the 6% rate. The resulting account would be discounted back to the measurement date using the FASB discount rate which let's say is 4% determined using the rates on long-term high-quality bonds on the measurement date. The resulting participant's PBO would be more than the participant's account balance, considerably so for younger employees where the 2% differential in rates will have the most effect (e.g., for a payment expected to be made in 30 years, the PBO would be almost *twice* the current account balance.) The next year, the PBO might reduce materially (e.g., if the FASB discount rate rises) or increase materially (e.g., if the FASB discount rate declines). However, in most years there likely will be a positive spread,¹⁵ which means that the PBO associated with a participant would exceed the participant's account balance until benefits commence. The result is that the service cost component of the net periodic pension cost would be "frontloaded" – running well in excess of principal credits to participant accounts, and likely the contributions to the plan (assuming contributions equal to principal credits) for many years and there would be an unfunded PBO due to these excess charges.¹⁶ There likely will continue to be an ongoing unfunded PBO and excess of PBO over the sum of account balances assuming the plan continues to provide and contribute principal credits to current and future employees.

Consider a simplified example of a new cash balance plan, effective January 1, 2023, that provides a single pay credit in 2023 equal to 5% of an employee's pay, and interest credits based on the actual investment returns of a specified mutual fund (credited at the end of each year). The employer assumes an expected return on assets (EROA) of 6%, no employee terminations before age 65 and that all employees will retire and take a lump sum equal to the account balance at age 65. Also assume that the discount rate, determined under ASC 715 is 4%, and the plan has one employee who is age 45 when the plan is implemented who earns \$100,000 per year. The 2023 pay credit for the employee would be

¹⁴ We recognize that, unlike a DC plan, a market-return cash balance plan is not required under the IRS regulations to fund the annual principal credits each year; however, we do not believe this distinction should affect the benefit cost under the accounting standards.

¹⁵ It is indeed possible for the expected return on equities to be less than the rate on long-term bonds – e.g., when interest rates and inflation expectations are high, such as in the late 1970s and early 1980s. But that was an unusual period.

¹⁶ The excess of the service cost over the corresponding principal credits and the PBO over plan assets (assuming contributions equal to principal credits) would arise even if there are no actuarial gains or losses (e.g., if employees terminate and retire in accordance with the assumptions). The pension income illustrated in the example on the next page would arise because the expected return on the plan's assets would exceed the interest cost due to the differential between the expected return assumption and the discount rate.

\$5,000 (5% of \$100,000), assumed to be credited at the end of the year. The employer contributes the \$5,000 pay credit to the plan trust on December 31, 2023. Intuitively, it would seem that the net periodic pension expense for 2023 should be the \$5,000 pay credit. However, let's examine what the 2023 service cost would be under the project/discount approach.

To derive the service cost in 2023, the \$5,000 pay credit is projected with interest at the 6% assumed rate of return to age 65 – 19 years from the end of 2023 to the end of 2042 just before the employee will turn age 65. The projected amount is \$15,128. Because we anticipate the employee will take a lump sum at age 65 there is no need to convert that amount to an age 65 annuity. Now we discount the \$15,128 at 4% (the assumed discount rate) back to the end of 2023 – i.e., by 19 years – to derive a service cost for 2023 of \$7,180. This amount also becomes the PBO as of January 1, 2024. Note that the 2023 service cost exceeds the pay credit by \$2,180, or by 44%, which results in an unfunded PBO as of January 1, 2024 of the same \$2,180. What relevance does this premium over the 2023 pay credit have? If the person left and took the lump sum at the end of 2023, the plan would pay \$5,000 not \$7,180.

Taking this example further, and assuming that all of the actuarial assumptions are met (and still assuming that the only pay credit granted is in 2023) – e.g., the fund earns 6% in all future years, the employee leaves and takes a lump sum at age 65, and discount rates remain at 4%, here is a summary of the funded status and annual pension expense in each of the years:

Year	Age BOY	PBO Beg. Yr.	Assets/Balances	Unfunded PBO	Service Cost	Interest Cost	Expected Return	NPPC For Yr.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				(3)-(4)		(3) x .04	(4) x .06	(6)+(7)+(8)
2023	45	0	0	0	7,180	0	0	7,180
2024	46	7,180	5,000	2,180	0	287	300	-13
2025	47	7,468	5,300	2,168	0	299	318	-19
2026	48	7,766	5,618	2,148	0	311	337	-26
2027	49	8,077	5,955	2,122	0	323	357	-34
2028	50	8,400	6,312	2,088	0	336	379	-43
2029	51	8,736	6,691	2,045	0	349	401	-52
2030	52	9,085	7,093	1,993	0	363	426	-62
2031	53	9,449	7,518	1,931	0	378	451	-73
2032	54	9,827	7,969	1,858	0	393	478	-85
2033	55	10,220	8,447	1,773	0	409	507	-98
2034	56	10,629	8,954	1,674	0	425	537	-112
2035	57	11,054	9,491	1,562	0	442	569	-127
2036	58	11,496	10,061	1,435	0	460	604	-144
2037	59	11,956	10,665	1,291	0	478	640	-162
2038	60	12,434	11,305	1,130	0	497	678	-181
2039	61	12,931	11,983	949	0	517	719	-202
2040	62	13,449	12,702	747	0	538	762	-224
2041	63	13,987	13,464	523	0	559	808	-248
2042	64	14,546	14,272	274	0	582	856	-274
2043	65	15,128	15,128	0	0	0	0	0

Note that the net periodic pension cost is actually pension income in all years 2024 through 2042. The sum of such pension income amounts in all such years is \$2,180, which equals the initial excess of the

service cost of \$7,180 over the 2023 pay credit of \$5,000. We see no justification in creating the inflated service cost and unfunded PBO only to reverse it gradually through annual pension income in all future years until retirement at age 65.

This outcome is not dependent on actually earning a return that matches the 6% expected return on assets. For instance, if the actual return each year was only 4%, matching the discount rate and falling short of expected returns, asset growth would be slower, but the participant's account balance and resulting liability growth would be similarly reduced, resulting in a very similar overall pattern of expense and with assets and liabilities similarly converging by the payout date. This is illustrated in Appendix A.

The above example can be repeated by adding additional employees at various ages and including ongoing principal credits. For the sake of keeping the arithmetic manageable, we did not introduce other real life factors, such as fluctuating discount rates and asset returns, and employee terminations at different ages. However, the patterns of outcomes would be the same – service costs that exceed principal credits and PBOs that exceed the account balances - as long as the expected return on assets exceeds the discount rate.

With respect to the fluctuations in PBOs due to fluctuating discount rates under the project/discount method, one might question whether that outcome is necessarily inappropriate for a market-return cash balance plan given that expense volatility is the norm for traditionally designed DB plans. The simple response is that the fundamental promises are different. Consider a frozen traditional DB plan. The PBO – determined using bond discount rates – is a decent proxy for the cost to settle the *fixed dollar* obligations¹⁷ with a third party (or with employees if lump sums are paid). That cost will vary as bond discount rates vary – lower interest rates means higher costs to settle (and vice versa). Why is this relevant? Because U.S. GAAP requires the benefit obligation to reflect the cost of settling the liability.¹⁸ More precisely, the discount rate is required to “reflect the rates at which the pension benefits could effectively be settled.” Employers “**may**...look to rates of return on high-quality fixed income investments...” [emphasis added]

Contrarily, changes in interest rates – up or down – would have little or no effect on the cost to settle the obligations under a market-return cash balance plan. Settling the obligations under such a plan would mean employees taking lump sums equal to account balances or a third party assuming the responsibility to pay future accounts with the market-return interest credits. A third party should be willing to assume the obligation to credit interest at a market return for a price close to the account balances – certainly at a cost much less than suggested by the potentially huge excess of PBO over account balances.

Getting back to the 6% guaranteed vs. 6% expected return example above, much like a TDB plan, a cash balance account growing with a fixed 6% crediting rate can only be settled by investing in fixed-income obligations (which may earn less than the 6% interest crediting rate), whereas the market-based cash

¹⁷ See ASC 715-30-35-43

¹⁸ The accounting rules require the presumption of an ongoing plan, unless there is a commitment to terminate the plan as of the measurement date. If there is a commitment to terminate the plan, ERISA would require that the plan's interest crediting basis be converted to a fixed rate – i.e., a non-market basis. At that point, a project/discount approach may be appropriate with respect to participants who are not anticipated to receive a lump sum distribution in connection with the plan termination.

balance with an expected long-term 6% return can only be settled by investing in the market assets defining the interest crediting rate (or paying out lump sums equal to account balances). Note that even if some employees elect annuities under the market-return cash balance plan, the cost to provide those annuities will be close to the account balances when the annuity commences as long as the annuity conversion basis reflects market conditions. The bottom line is that there is little or no financing cost associated with pure-market-return cash balance benefits (until they are converted to an annuity, if ever), and it makes no sense to book a liability that will be reversed over time.

A Better Accounting Approach for Market-Return Cash Balance Plans

If the accounting rules truly require a project/discount approach for a market-return cash balance plan, the projection basis should not vary depending on the “expected” rate of return underlying the market-return interest credits – and should be equal to the discount rate determined in the same way as for traditionally designed DB plans.¹⁹ This would result in the PBO with respect to cash balance accounts equal to the sum, on the measurement date, of account balances and the service cost equal to the sum of the principal credits (assuming no forfeitures, subsidized early retirement or other special benefits).

The folly of projecting and discounting at different rates for a plan that credits interest to participants’ accounts based on market rates of return was illustrated in the example above. The only risk that the sponsor might face relates to the provision for annuities, although that risk and potential cost are likely to be minimal. Thus, one would anticipate the accounting for this plan to be essentially the same as a DC plan where contributions equal the principal credits in the cash balance plan and assets are all invested in marketable securities. However, that outcome will almost certainly not occur under the standard project/discount approach because the projection rate would be based on the best estimate of future returns on the assets underlying interest credits, whereas the discount rate each year will be based on the current rates of high-quality corporate bonds with durations similar to the anticipated cash flows from the plan.

An approach that totally avoids the project/discount methodology for a market-return cash balance plan is to set the PBO equal to the sum of the account balances of all plan participants on the measurement date, the service cost equal to the sum of the principal credits in a given year and the interest cost equal to the sum of the interest credits during that year.²⁰ This is consistent with the outcome that FASB tentatively agreed to in 2004 before the cash balance project was put on hold:

¹⁹Alternatively, the projection rate might be based on the expected rate of return underlying the market-return interest credits, in which case the discount rate should be set equal to such expected rate of return. The two variations of the “equal projection/discount rate” approach will generally produce the same benefit obligations with respect to cash balance benefits. Setting the discount rate equal to the expected long-term interest crediting rate would seem to be more consistent with the notion that the cash balance obligations can only be hedged by investing in assets that track the plan’s interest credits. However, setting the projection rate equal to the discount rate determined using the approach used for traditional DB plans would be consistent with the method used to discount annuity payments under the plan for retirees and for actives with legacy stand-alone or minimum annuity benefits.

²⁰ FASB initially concluded that the project/discount approach was inappropriate: “For cash balance pension plans with a market or market-related (variable) interest crediting rate, the obligation would be measured by reference to the notional account balance. Entities are not to project and discount the notional account balance.” Minutes of the March 3, 2004 Board Meeting. https://www.fasb.org/page/ShowPdf?path=03-03-04_interp_st87.pdf&title=03-03-04_interp_st87.pdf

All Board members agreed with the staff's recommendation that service cost should be determined by the pay/principal credits allocated to employees' notional account balances during the period; similarly, interest cost should be determined by the interest credits allocated to employees' notional account balances. . . . The Board voted to require that the interest cost component of net periodic pension cost should be based on the actual interest credit to plan participants' notional account balances during the period. . . . The staff recommended that the assumed discount rate that should be disclosed is the rate related to the nonvariable and/or noncash balance component of the PBO and that the related PBO amount also should be disclosed. The Board voted in favor of the staff's recommendation.²¹

However, under this approach, adjustments to the benefit obligations (up or down) would then be made, if material²² to reflect any special plan features, such as cumulative minimum or maximum interest crediting rates, forfeitures before full vesting, subsidized or special benefits, etc. Some of these special plan features, and how adjustments might be made to reflect them are discussed in Appendix B. Of course, if the plan also provides legacy or ongoing TDB benefits, or if retirees elect annuity benefits, they would have to be included in the accounting valuation in the normal way for TDB plans.

Under this approach or the project/discount approach where the projection and discount rates are the same, the account balances would be equal or close to the PBO each year and there would be no systemic pension income (or expense) in any year.²³ Changes in discount rates (or expected return rates) would have no effect on the outcomes.

Summary and Conclusions

In 2004, FASB recognized that accounting rules being applied in practice for cash balance pension plans, particularly plans “with a market or market-related (variable) interest crediting rate,” did not reflect the true economics of these plans. FASB tentatively approved changes in these accounting rules, but the changes were never finalized, and the issue remains unaddressed.

Meanwhile, in 2006, Congress paved the way for employers to adopt cash balance plans that credit interest based on actual market returns of plan specified assets (as opposed to fixed rates or market-related rates such as yields on a specified Treasury bond). While these “market-return” cash balance plans have proliferated among smaller corporations and partnerships, many GAAP compliant employers have been deterred from moving forward because of uncertainties regarding the proper accounting treatment and the prospect that they would be forced to determine liabilities and costs that do not faithfully represent the true economics of the plans.

²¹ Minutes of May 12, 2004 Board Meeting. https://www.fasb.org/page/ShowPdf?path=05-12-04_interp_st87.pdf&title=05-12-04_interp_st87.pdf

²² The plan's actuary would normally be involved in assessing the potential effect of these special plan features, although the decision as to whether they can be treated as immaterial and disregarded in the determination of pension obligations would be made by the employer in consultation with the auditor.

²³ This presumes that the PBO is fully funded with plan assets and cash balance accounts are credited at the plan investment return rates. If employer principal credits are not fully funded or if cash balance accounts are credited based on investment returns of specified non-plan assets, there will be actuarial losses and gains and some volatility in pension expense. But, any such volatility is likely to be much less severe than under a project/discount approach.

In this paper, we demonstrate that the economic obligation associated with a participant's cash balance account that receives true market-based interest credits is equal to the account balance at that time. In the process of demonstrating this, we explore the consequences of applying to a market-return cash balance plan the same "standard project-discount" methodology that is commonly used for non-market-return cash balance plans.

Our analysis reveals that the resulting liabilities and costs of applying the project-discount methodology would bear no relationship to the true economics of such a plan's benefit promises, unless the projection rate – i.e., the assumed future rate of return on participants' cash balance accounts – is set equal to the FASB discount rate. In fact, in the typical situation where it would be tempting to assume a projection rate that is higher than the corresponding discount rate – because the "expected return" on the assets underlying interest credits, which assets includes some equity investments, is higher than the expected return on fixed income assets, the result would be PBOs and service costs that would always exceed participants' account balances for an ongoing market-return cash balance plan.

To avoid the illogical and non-economic outcomes that the standard application of the project-discount approach would cause for market-return cash balance plans, we recommend that the two following alternative approaches be considered: (1) apply the project-discount approach setting the projection assumptions equal to the discount rate, or (2) set the PBO equal to the sum of participants account balances (and service cost equal to the sum of the principal credits in the year), adjusted for any net material "embedded options or subsidies."

If auditors are reluctant to interpret the existing accounting rules to market-return cash balance plans in a way that results in market-based measurements, we believe that FASB could accomplish that outcome through the adoption of an Accounting Standard Update. The treatment of cash balance plans that provide interest credits using fixed rates or other kinds of variable rates (e.g., the yields on a specified government security) need not be addressed in such an ASU, as the accounting treatment for such plans is well established and generally does not produce the dramatic overstatement of accounting costs that would often be observed for true market-based plans.

Appendix A: Illustration of Project/Discount Approach If Actual Returns Equal Discount Rate

The following table summarizes the results of the example presented and discussed in the section above entitled “Effect of Applying the Project/Discount Approach to Market-Return Cash Balance Plan.” In that example, the participant enters the market-return cash balance plan at age 45 and is assumed to (and actually) retires at age 65. There is a 2% spread between the account projection rate based on the expected rates of return on the plan specified mutual fund of 6% and the 4% discount rate. All actuarial assumptions are assumed to be met in all future years. The table shows in columns (3), (4) and (5) the PBO, assets (and account balances) and funded status as of the end of the period indicated in column (1). Columns (6) through (9) show the sums of the components of net periodic pension cost during each of the indicated periods; column (10) shows the total net periodic pension cost during each indicated period. The last row in the table shows the cumulated components and total net periodic pension cost in all years combined.

Period	Age EOP	PBO EOP	Assets/ Balance EOP	Funded Status EOP	Service Cost in Period	Interest Cost in Period	Expected Return in Period	Gain in Period	NPPC in Period
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				(4)-(3)					(6)+(7)-(8)-(9)
2023	46	7,180	5,000	(2,180)	7,180	0	0	0	7,180
2024-27	50	8,400	6,312	(2,088)	0	1,220	1,312	0	(93)
2028-32	55	10,220	8,447	(1,773)	0	1,820	2,135	0	(315)
2033-37	60	12,434	11,305	(1,130)	0	2,214	2,857	0	(643)
2038-42	65	15,128	15,128	0	0	2,694	3,823	0	(1,130)
Cumulative Amounts 2023-2043					7,180	7,948	10,128	0	5,000

The next table repeats all the calculations in the above table but with one difference. Rather than assuming that there are no actuarial gains or losses in each year – i.e., that all assumptions are met – it is assumed that the actual investment returns of the plan’s assets (and the investment returns credited to plan cash balance accounts) in each year turn out to be 4% (rather than 6%) – i.e., the actual interest crediting rate and the discount rate are equal. We have assumed that the gains are immediately recognized.

Period	Age EOP	PBO EOP	Assets/ Balances EOP	Funded Status EOP	Service Cost in Period	Interest Cost in Period	Expected Return in Period	Gain in Period	NPPC in Period
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				(4)-(3)					(6)+(7)-(8)-(9)
2023	46	7,180	5,000	(2,180)	7,180	0	0	0	7,180
2024-27	50	7,784	5,849	(1,934)	0	1,184	1,274	156	(246)
2028-32	55	8,610	7,117	(1,493)	0	1,622	1,901	162	(441)
2033-37	60	9,524	8,658	(865)	0	1,794	2,313	109	(628)
2038-42	65	10,534	10,534	0	0	1,984	2,814	35	(865)
Cumulative Amounts 2023-2043					7,180	6,583	8,301	463	5,000

Comparing the two tables, we see that the principal credit in 2023 is the same \$5,000. The service cost in 2023 is the same \$7,180 because the projection rate of 6% and discount rate of 4% are unchanged. In both tables there are no service costs in subsequent years because the only principal credit is in 2023.

The plan's assets and PBOs are lower in each year after the first year due to interest credits (and returns on assets) being 4% rather than 6%. The final PBO at age 65 (and the lump sum payable) is \$10,534, rather than \$15,128. The use of actual investment returns of 4% rather than 6% causes a small actuarial gain, the net result of a lower than expected PBO offset, but not entirely, by lower than expected assets (and account balance).

While the numbers are somewhat different under the two tables the patterns are the same: Initial PBO exceeding initial assets, resulting in the same initial unfunded liability, with the unfunded gradually eliminated over the remainder of the period through recognition of pension income whether assets (and plan accounts) earn the expected return of 6% or only earn the 4% discount rate. The cumulative net periodic pension cost is the same \$5,000 in both cases – i.e., the initial (and only) principal credit.

Appendix B: Reflecting Special Benefits and Features

As mentioned above, there are a number of special benefits or features that may be included in a market-return cash balance plan that, if material, would need to be reflected in the determination of benefit obligations and costs. The following discusses some of those benefits and features and our thoughts on whether and how adjustments might be made to the PBO and service costs to reflect them.

Minimum interest crediting rates. For cash balance plans subject to ERISA – the vast majority of the plans sponsored by employers subject to GAAP – there is a “preservation of capital” minimum applicable when a participant receives a lump sum or commences an annuity. This minimum is equal to the sum of principal credits – i.e., a cumulative 0% return. Typically, this feature is not anticipated to have a significant effect on the plan’s benefit obligations. Nevertheless, the plan actuary should reflect its value using actuarial or investment techniques (e.g., option pricing models) or be prepared to demonstrate that such value is not material if the employer decides to not include any additional amount in the PBO, service cost, and other obligations on account of this feature.

Under Treasury regulations, employers are permitted to provide a minimum cumulative return up to 3% rather than the statutory minimum of 0%. If such a higher minimum is applicable for a market-return cash balance plan, it becomes more likely that its effect will be material. Again, the actuary should either explicitly include the anticipated cost of this feature in his or her calculations of the benefit obligations or be prepared to demonstrate that its value is immaterial if not included.

Haircuts in interest crediting rates. Some employers may wish to prescribe a “haircut” to the interest crediting rate, perhaps to offset the anticipated cost of minimum interest crediting rates, to offset the cost of plan administration, or to offset the cost of providing subsidized annuities. Such haircuts may take the form of basis point or percentage reductions (e.g., credit 90% of positive market returns rather than 100%). To the extent that such haircuts to interest crediting rates are reasonably expected to offset the aforementioned or similar costs, no adjustment to the benefit obligations would be needed.

If a haircut in interest crediting rates is not anticipated to be offset by those additional plan costs, it may be appropriate for the PBOs and service costs to be less than participants’ account balances and principal credits, respectively. However, it should be noted that a plan provision that credits interest at rates that are far below the rates that are earned by the plan’s assets or by the plan designated outside funds should not be viewed as a market-return interest crediting basis falling within the scope of our analysis and recommendations. Moreover, we doubt that such a plan provision is sustainable. For example, if a plan limits the interest credits to one-half of the rates of return on a plan designated mutual fund in years when such returns are positive, plan participants are likely to pressure the employer to amend the plan to credit rates more in line with rates they could earn in their 401(k) plans or in outside funds with similar risk characteristics.

Forfeiture recognition. Cash balance plans subject to ERISA must fully vest a participant’s account upon completing three years of service or attaining normal retirement age (typically, age 65). The determination of PBOs and service costs may reflect anticipated forfeitures of account balances for participants assumed to terminate employment before becoming vested in their accounts.

Payment of annuities. Once an annuity commences, the amount and form of the annuity are determined under the plan provisions, including any actuarial assumptions required in determining such

annuities. Present values of the annuities are then calculated on the measurement date using the discount rate (and mortality assumptions) determined in the same way as traditional defined benefits. The resulting PBO with respect to a participant whose plan benefits have not yet commenced could exceed the current account balance if there is an assumption that some or all of the participant's benefit will be paid in an annuity form and the annuity is subsidized – i.e., the present value of an annuity (and any associated death benefits) using ASC 715 assumptions is anticipated to materially exceed the participant's current account balance. Conversely, if the present value of the plan annuity is materially less than the current account balance it would seem prudent to assume that most or all participants will elect lump sums, thereby avoiding PBOs that are less than account balances, or at least minimizing that impact.

Above Market Interest Credits. For market-return cash balance plans subject to ERISA, it is generally impermissible to provide interest crediting rates that exceed market or specified market-related rates. Thus, for example, it would not be permissible to provide annual interest credits equal to the returns on a specified S&P 500 mutual fund, plus 2%. If an employer sponsors a cash balance plan with such a feature – perhaps under a plan not subject to the ERISA limitation – it would seem that the PBO should exceed the participant's account balance and the service cost should exceed annual principal credits to reflect the above market interest. The amount of the excess might be determined in this example by projecting interest credits on account balances at a rate that is 2% higher than the associated discount rate on the valuation date.