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Gold Standard in Public Retirement System Design Series—No. 5

BEST PRACTICES IN CASH BALANCE PLAN DESIGN

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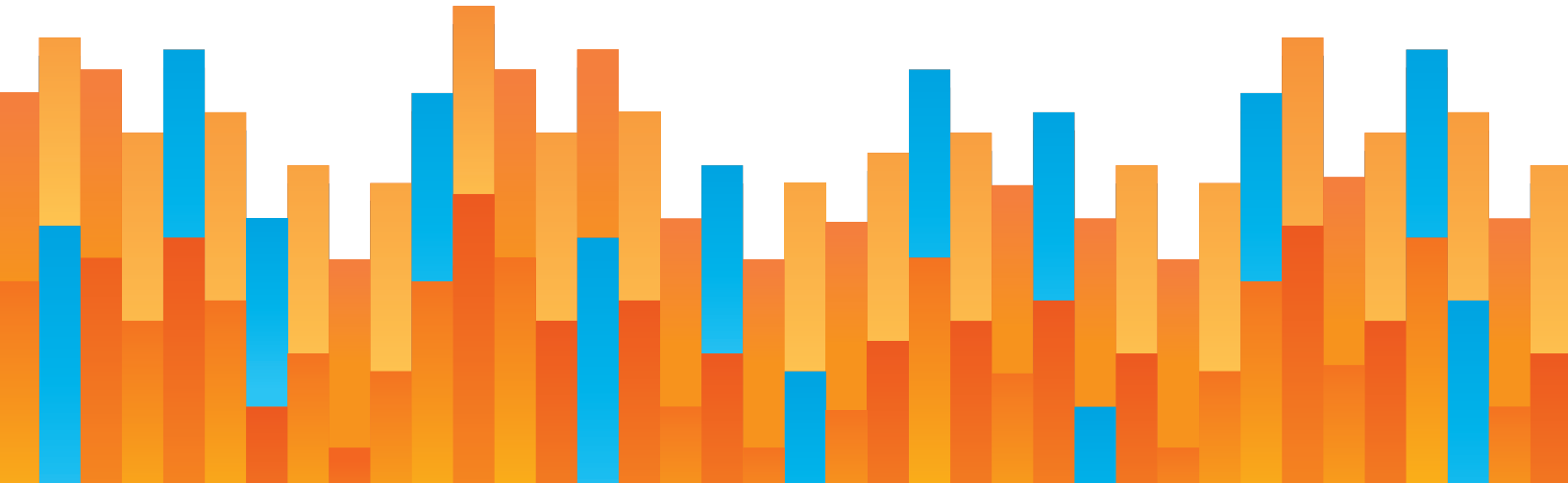

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The "Gold Standard in Public Retirement System Design Series" reviews the best practices of state-level public pensions and provides a design framework for states that are struggling under a burden of post-employment benefit debt. This fifth entry in the Gold Standard series looks at how public plan sponsors can best design and implement cash balance public pension plans.

Gold Standard Brief #1: Best Practices in Incorporating Risk Sharing into Public Sector Defined Benefit Pension System Design

Gold Standard Brief #2: Best Practices in the Design and Utilization of Public Sector Defined Contribution Plans

Gold Standard Brief #3: Best Practices in Cost-of-Living Adjustment Designs in Public Pension Systems

Gold Standard Brief #4 Best Practices in Hybrid Retirement Plan Design

Gold Standard Brief #5 Best Practices in Cash Balance Plan Design

EXECUTIVE SUMMARY

The "Gold Standard in Public Retirement System Design Series" reviews the best practices of public pensions and provides a design framework for states struggling under burdening post-employment benefit debt. This entry in the Gold Standard series will look at cash balance plans, which have seen a recent uptick in adoption over the past few years. This brief examines the best practices for implementing a successful cash balance plan, as well as exploring the offerings of cash balance pension plans across the country.

This analysis reveals that the stability and adequacy of cash balance plans are critically determined by specific design choices. The interest crediting formula, in particular, emerges as the central driver of employer risk. While fixed or market-based crediting methods produce funding volatility nearly identical to that of traditional defined benefit plans, this research demonstrates that conditional formulas—such as those tied to funded status or featuring capped market returns—can meaningfully reduce volatility while still supporting sufficient retirement income.

Effective plan design must also be paired with robust funding policies. In most scenarios, contribution rates between 12% and 20% of pay can achieve full funding and ensure adequate benefits, provided they are coupled with conservative return assumptions and disciplined amortization methods. Open or overly long amortization periods can erode plan solvency even when the underlying benefit structures are designed to be more predictable.

Overly aggressive assumptions in asset smoothing, payroll growth assumptions, and plan maturity mask funding shortfalls and create compounding deficits. These factors, while often overlooked, prove to be as consequential as the benefit formula itself in determining a system's long-term risk exposure.

A transition to a cash balance structure offers an opportunity to reset actuarial assumptions, enforce strict funding discipline, and improve stakeholder transparency. This modeling concludes that cash balance plans, when constructed with conditional mechanisms and strong funding rules, offer a stable and sustainable framework for public retirement systems.

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PART 1

INTRODUCTION

The continued underfunding of U.S. pension systems has put an enormous strain on state and local governments. To combat this, many plan sponsors have begun to look at alternative designs for their retirement systems. One of those designs is the *cash balance* plan, a type of retirement plan that blends features of traditional defined benefit pensions with elements of defined contribution (DC) plans, offering a notional employer contribution, a guaranteed interest credit, and improved portability for employees. Up until 2012, there were only four public cash balance plans in the entire country. There are now eight such plans, with two of those being adopted since 2020.

> *Cash balance plans are positioned as an option that meets the needs of plan sponsors who wish to pare down their risk exposure, while still offering their employees a low-maintenance, guaranteed benefit.*

Cash balance plans are positioned as an option that meets the needs of plan sponsors who wish to pare down their risk exposure, while still offering their employees a low-maintenance, guaranteed benefit. For a mobile workforce that tends not to spend full careers in government employment, especially in the days of teleworking, cash balance plan portability—on par with DC retirement plans—is attractive. When an employee leaves

their employment, for whatever reason, a cash balance plan allows the employee to take the entirety of their contributions, as well as their employer's, plus the interest gained on those contributions.

PART 2

WHAT IS A CASH BALANCE RETIREMENT PLAN?

A cash balance retirement plan is a type of modern defined benefit (DB) pension design that offers more flexibility and portability than traditional pensions that rely on rigid formulas tied to—and designed to primarily reward—longevity. Traditional public pension benefits are calculated using formulas tied to years of service and final average salary levels. By contrast, a cash balance plan creates an account for each participant where annual contributions are made from the employee and employer, and the employer guarantees an "interest credit" on those accumulating contributions.

The guaranteed interest credit is why the U.S. Department of Labor defines a cash balance plan as a DB pension plan.[1] This base interest credit is typically between 4% and 5% for cash balance plans for state government employees, and while each cash balance plan is designed differently, in most cases the employee bears little to no downside risk in investment returns. Cash balance retirement plans are designed to guarantee asset growth

[1] "Fact Sheet: Cash Balance Pension Plans," U.S. Department of Labor, dol.gov, November 2011. www.dol.gov/agencies/ebsa/about-ebsa/our-activities/resource-center/fact-sheets/cash-balance-pension-plans (29 September 2022).

while providing a steady accrual rate, offering members portability and ensuring a path to retirement security.

Despite the technical definition as a type of pension, some consider cash balance plans as "hybrid" plans due to common attributes shared with 401(k)-style DC retirement plans commonly offered by private sector employers. While it is true that cash balance plan members have individual account balances resembling DC account balances, those balances are notional only, without actual cash flow of contributions and investment earnings. Contributions and investments are still handled at the plan level like a DB plan, and the government employer (not the employee) is still responsible for all (or most, depending on the benefit structure) investment risk. Because cash balance plans are ultimately DB plans, sponsors still need to manage their actuarial assumptions responsibly to avoid systematic underfunding.

> *While each member has their own account, the account assets are pooled together for investing purposes in the same way a DB plan's assets are.*

While each member has their own account, the account assets are pooled together for investing purposes in the same way a DB plan's assets are. Pooling assets allows plans to leverage greater scale and invest more effectively than a typical individual investment account would permit. This pooling also allows the assets to be managed in a government-sponsored retirement system, allowing members the ability to lean on institutional investment professionals and removing the need for them to manage their own investment portfolios.

2.1 BENEFIT STRUCTURE

A standard cash balance plan design provides members with their own individual retirement account. The member contributes a portion of their salary, while the employer makes a notional contribution and invests on the employee's behalf, crediting the account annually with an interest rate. Both traditional DB pensions and cash balance plan designs

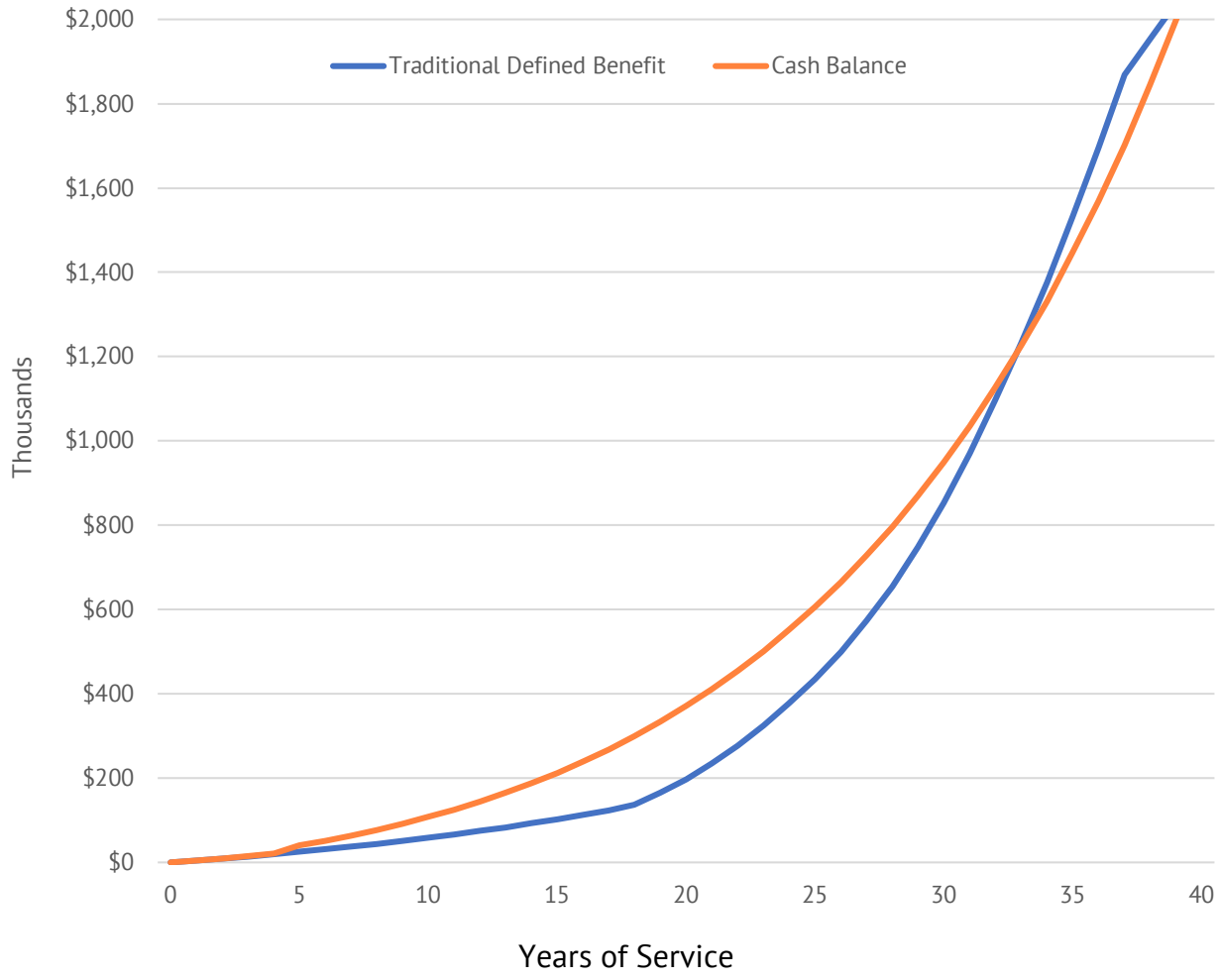
are examples of guaranteed return plans, because in either case the employer commits to ensuring that an employee's retirement savings grow annually at some minimum or fixed level with no risk. The difference is that a cash balance plan defines a member's benefit as a constantly growing account balance, while a traditional DB pension plan defines a member's benefit using an accrual formula based on salary and years of service.

Both traditional DB pensions and cash balance plan designs are examples of guaranteed return plans, because in either case the employer commits to ensuring that an employee's retirement savings grow annually at some minimum or fixed level with no risk.

Cash balance plans credit a member's account each year with a "pay credit" (typically as a % of pay) and an "interest credit" (either a fixed rate or a variable rate linked to some formula). The pay credit represents the notional contribution from the employer, while the interest credit represents the predetermined investment income to the member's account balance. The actual employer contribution is not necessarily the same as the pay credit due to the potential difference between (1) the plan's discount rate and the expected interest crediting rate and (2) the difference between the plan's actual and expected experience, which can give rise to additional contributions to amortize the resulting unfunded liability. Similarly, the interest credits are not necessarily the same as the actual investment earnings from the cash balance fund. Actual investment outcomes can exceed plan expectations, which will result in larger-than-expected credits added to an individual's account, after applying whatever gain-sharing formula is in use by the plan.

One advantage a cash balance plan has over the traditional DB plan lies in its benefit accrual pattern. A DB plan's value spikes at the end of a career due to the nature of the final average salary calculation. Due to this spike, any employee who does not stay until the plan's normal retirement age receives a comparatively lower benefit. In contrast, a cash balance plan offers a steadier accrual pattern, like a DC plan. This gradual approach can be advantageous to younger or mid-career members who do not plan to work a full career in a job covered by the same DB plan.

FIGURE 1: TRADITIONAL DB VS CASH BALANCE (PRESENT VALUE OF BENEFITS IN NOMINAL DOLLARS)



Benefit calculations assume an entry age of 25 and are based on the 2024 actuarial valuation of the Teacher Retirement System of Texas. Cash balance assumes a 12.25% total pay credit and a 7% fixed rate for interest credit, annualization, and discounting.

A significant problem with several statewide DC plans is they don't have contribution rates high enough to provide members with lifetime income in retirement.

Due to the benefit structure inherent within this design, setting proper contributions is key for ensuring an adequate retirement. A significant problem with several statewide DC plans is they don't have contribution rates high enough to provide members with lifetime income in retirement.[2] These rates must be adequate to ensure that retirees can live comfortably as they age in their post-employment phase of life. This is not a new concept. An analysis from nearly 20 years ago found that the total contribution rate—employer and employee contributions combined—to fund an adequate retirement benefit would be 12% for those covered by Social Security, and 18%-20% for those who are not.[3] These suggested contribution rates apply to both DC and cash balance plans.

2.2 INTEREST CREDIT

In addition to contribution levels, the other main component of a member's benefit comes in the interest credit. The interest crediting rate (ICR) can be structured in multiple ways and requires carefully considering the benefit levels provided, as well as the desired risk allocation between the employer and the employee. Design types include:

- ***Fixed ICR***: This is the most straightforward option. With this design, the employee's balance account is guaranteed to earn a fixed interest rate periodically. This means the employer assumes all investment risk, but also all the upside advantages. The fixed ICR is typically set at 4% to 5%.
- ***Variable ICR***: With this option, the ICR can vary according to some index or formula. This allows the employee to potentially capture some upside and the employer to still share minimal investment risk with the employee. Two popular ways to set the variable ICR are:
    - ***Linking the ICR to a 10-year or 30-year Treasury rate***: In a low-interest rate environment, the Treasury rates are normally lower than the plan's assumed rate of return. The resulting excess returns allow the employer to lower the actual contributions relative to the pay credits. High Treasury rates, on the other hand, increase the benefit value and consequently raise the plan's liability while tending to depress the plan assets' value. Unfortunately,

[2] Richard Hiller, "Florida's public defined contribution retirement plan has a big flaw," Reason Foundation, 2021. www.reason.org/commentary/floridas-public-defined-contribution-retirement-plan-has-a-big-flaw (29 September 2022).

[3] Roderick Crane, Michael Heller, Paul Yakoboski, "Best Practice Benchmarks for Public Sector Core Defined Contribution Plans," TIAA-CREF Institute, 2008, www.tiaainstitute.org/sites/default/files/presentations/2017-02/pub_dc_plan_design_crane_heller_yako.pdf (29 September 2022).

hedging against this situation is difficult because long-term Treasury rates are not investible instruments.[4]

- ***Linking the ICR to the actual investment return of the plan***: This design allows the employee to potentially earn more than the typical 4%-5%. Since the plan's returns and the interest credit are linked, the plan's assets and liability move together, reducing underfunding or overfunding risks. A lower-than-expected return often means a lower-than-expected interest credit. The former lowers plan asset growth while the latter reduces the plan liability growth.

In practice, simply making the ICR equal the plan's market return would create volatility in the employee's account balance and effectively turn the cash balance plan into a DC plan without any return guarantee from the employer. Thus, cash balance plans usually have built-in mechanisms to limit both the downside risk of asset loss to the employee and the downside risk of cost fluctuations to the employer.

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One widely used approach is to set a minimum interest credit rate (ICR), which guarantees that an employee's account will grow by at least a certain amount each year, even when investment returns are negative. This floor provides valuable protection and helps stabilize benefits. However, offering such guarantees also affects the long-term expected ICR, or the average rate the plan anticipates crediting over time. This expected ICR is not the same as the plan's expected investment return. Instead, it depends on both the return assumption and the volatility of returns, especially when a minimum crediting rate is in place.

[4] Larry Sher, Tom Miano, Brian Donohue, Jeff Stevenson, John Kleiser, Courtney Bach, and Brian Fleming, "Cash Balance Plan 2018 - Survey & Trends," October Three, 2018. www.octoberthree.com/wp-content/uploads/2018/07/cash-balance-plans-2018-survey-and-trends-october-three.pdf (8 July 2025).

Here's an example to illustrate the dynamic. Imagine a cash balance plan expects its investments to average 7% per year over the long term, but market ups and downs cause significant yearly variation (say, an annual 12% volatility, meaning returns typically range from negative 5% to plus 19%). The plan ties the ICR to actual investment returns, so the interest credited to employees' accounts fluctuates with performance. Without a minimum ICR, the ICR would mirror the investment return each year—sometimes high (like 19%), sometimes low (like -5%)—averaging out to the expected 7% investment return over time. This average is the expected ICR.

Now, introduce a minimum ICR for employee protection. If the plan sets a minimum ICR of 0%, employees receive at least 0% interest even when investments lose value (say, -5%), avoiding a decline in their account balance. In years when returns exceed 0% (say, 10%), they get the full 10%. This creates a pattern where employees are shielded from losses but still enjoy gains. As a result, the expected ICR—the long-term average interest rate—exceeds the plan's 7% expected investment return. Calculations show that with a 0% minimum ICR, the expected ICR rises to about 9.1%. A higher minimum ICR, like 4%, pushes it further, to around 10.5%.

Why does this occur? The minimum ICR functions as a one-way filter: it lifts the interest credited in poor years (by preventing losses) without capping it in strong years. Over time, this skews the average upward. Greater market volatility amplifies this effect, as larger return swings trigger the minimum ICR more often, further boosting the expected ICR. For employers, a higher expected ICR translates to increased costs, as they must contribute more to fund these benefits.

> *To avoid excessive interest credits that increase the plan cost, both a minimum and a maximum ICR can be specified.*

To avoid excessive interest credits that increase the plan cost, both a minimum and a maximum ICR can be specified. Additionally, an upside sharing percentage applied to a rolling average return over a three- or five-year period can help dampen the interest credit volatility and therefore enhance the stability and predictability of the plan's liability.

For example, a market-responsive ICR can be structured to equal a 4% base rate plus 50% of any excess return above 4%. It can also set a capped rate above the base rate, such as 9%, with the excess return being the difference between 4% and the rolling average return over a five-year period. So, if the average investment returns over the last five years were 10%, the member's account balance would receive a 7% interest credit (4% + 50% * (10% - 4%) = 7%). Using the same risk-return profile mentioned earlier (7% expected returns and 12% expected volatility), this cash balance would expect a 5.75% average ICR.[5]

> *The ICR benefit has important funding implications, whether it is a fixed or a variable rate.*

The ICR benefit has important funding implications, whether it is a fixed or a variable rate. If the expected ICR is lower than the expected rate of return, the actual employer contribution tends to be lower than the pay credit. Conversely, if the expected ICR is higher than the expected rate of return, the actual employer contribution tends to be higher than the pay credit. The logic here is that if the employer promises the employee an ICR higher than warranted by the plan's investment returns, the employer must make up the difference with extra contributions not reflected in the notional pay credit. A typical cash balance plan tends to set the ICR below its assumed rate of return to strike a desired balance for how much employees and employers share in unexpected challenges in funding costs and liabilities.

When the expected ICR equals the assumed rate of return, the plan's employer normal cost also equals the pay credit (assuming that all benefits are immediately vested).[6] In this special case, the plan's accrued liability also equals the account balance. This drastically reduces the impact of actuarial assumptions, other than the return assumption, on the

[5] The 5.75% expected interest crediting rate is based on 10,000 simulated 30-year investment return paths, assuming a long-term geometric return of 7% and annual volatility of 12%. Each year's credit is determined by a formula that provides 4% plus 50% of any excess of the five-year geometric average return above 4%, capped at 9%.

[6] Raymond J. Murphy, "The Cash Balance Funding Method," *Cash Balance Symposium Monograph* (2002), *Society of Actuaries*. www.soa.org/globalassets/assets/library/monographs/retirement-systems/cash-balance-symposium/2002/january/m-rs02-3-04.pdf (2 July 2025).

plan's funding. In other words, assumption changes or different-than-expected experience not related to investment returns will result in little to no underfunding or overfunding.

Optimally, proper actuarial analysis and stress testing would determine the appropriate ICR structure for a cash balance plan, especially when the ICR is linked to the plan's investment performance. Without clearly understanding how the ICR behaves under return volatility, a cash balance plan's true funding cost may be underestimated.

2.3 BENEFIT DISTRIBUTION

A cash balance plan typically has a vesting period after which the employee is entitled to both the employer pay credits and the associated interest credits. If the employee leaves the system before they are vested, they will (like in a DB plan) only receive their own contributions and the interest on those contributions.

If the employee leaves the system before they are vested, they will (like in a DB plan) only receive their own contributions and the interest on those contributions.

When a vested member leaves the system before they are eligible for retirement, they can choose to roll over their account balance to their new employer or leave it in the system until retirement. The account balance left in the system can still earn interest credits until retirement.

Once a member reaches retirement age, they have the option to either purchase a monthly annuity from the pension system, based on their account balance, or take a lump sum distribution of their accrued assets. For employers that want to promote guaranteed lifetime benefits in their cash balance plans, the lifetime annuity can be made the default retirement option.

The interest rate to convert the account balance into a lifetime annuity is called the annuity conversion rate (ACR). This rate can be set to equal the plan's assumed rate of return (discount rate) for simplicity. However, some plans set the ACR below their assumed rates of return to lower their costs and liabilities. This also makes the annuity option relatively cheaper (to the plan sponsor) than the lump sum option. The reason for this is that the plan must give the retiring member their full account balance under the lump sum option, while it can set aside a smaller amount of funds to take advantage of the interest spread (the difference between the plan's assumed rate of return and the ACR) under the annuity option. On the flip side, a lower ACR translates to lower monthly retirement benefits for retirees.

PART 3

HOW CASH BALANCE PLANS ARE FUNDED

Cash balance plans are pre-funded the same way traditional DB pension plans are. For a typical DB plan, future benefits are first projected based on a benefit formula and different assumptions about future salary growth, termination, retirement, disability, and mortality. The projected benefits are then discounted and allocated to the member's active working years in the form of the "normal cost." The normal cost is therefore the actuarial present value of future benefits accrued in each year.

In a perfect world, the normal cost contributions would be enough to fund all future benefits. However, real-world experience usually differs from actuarial assumptions, which creates a mismatch between the plan's liability and assets that manifests as an unfunded liability, or pension debt. Thus, a DB plan's other funding cost is the pension debt amortization cost, which pays down any unfunded liability arising from assumption changes and negative actuarial experience.

Both the normal cost and the pension debt amortization cost are a cash balance plan's fundamental funding components. The same "projecting benefits forward and discounting them backward" process described above is used to determine a cash balance plan's normal cost. This explains why the normal cost is lower than the pay credit if the ICR is lower than

the assumed rate of return.[7] And like a traditional DB plan, a cash balance plan is subject to the same actuarial assumption risks that produce unfunded liabilities. For example, if a cash balance plan member leaves their job earlier than expected, and if that plan's ICR is lower than its assumed rate of return, the plan will experience an actuarial loss as the early terminations mean the plan's assets do not have enough time to catch up with the notional account balances.

> *Cash balance plans are pre-funded the same way traditional DB pension plans are.*

Setting reasonable actuarial assumptions and having a prudent funding policy are as important to a cash balance plan as they are to any DB plan. A cash balance plan, therefore, should not set excessively high return assumptions or amortize pension debt over a period longer than the average active member's remaining working lifetime (typically less than 15 years). Funding risks can be further reduced by linking the ICR to the plan's investment performance or matching the ICR to the plan's assumed rate of return, as explained in the previous section.

[7] Suppose we project $100 forward one year with an interest rate of 4% and discount it backward with an interest rate of 7%, we will get $100*(1+4%)/(1+7%) = $97, which is lower than $100.

PART 4

BEST PRACTICES FOR CASH BALANCE PLANS

As many public employers transition away from traditional DB pensions, favoring more-portable and predictable alternatives, the cash balance plan has emerged as a leading design. But while the structure offers many advantages, its success depends entirely on how it is implemented. A well-designed cash balance plan should not only align plan liabilities with funding realities but also ensure that employees earn meaningful and secure retirement benefits. Based on state and local system experience, combined with actuarial modeling and plan performance data, the following elements constitute best practices for designing and administering public sector cash balance plans.

#1 ESTABLISH TOTAL CONTRIBUTIONS BETWEEN 12% AND 20% OF PAY, DEPENDING ON SOCIAL SECURITY COVERAGE

The most fundamental design element is the combined contributions made by employers and employees. Plans that set contributions too low cannot produce adequate retirement outcomes. We recommend that, for members who also participate in Social Security, combined contributions to the cash balance plan should be at least 12% of pay. For members not covered by Social Security, a common feature in many public plans, the contribution rate should be between 18% and 20%. These figures are supported by both public pension adequacy studies and are prescribed in our best practices in defined

contribution plans paper. Contribution rates below these levels should be avoided unless supplemented by other retirement income sources.

#2 STRUCTURE THE INTEREST CREDITING RATE (ICR) TO INCLUDE A FIXED BASE WITH CONDITIONAL UPSIDE SHARING

A best-in-class interest crediting structure should balance the need for predictable benefit growth with the financial realities of market volatility. Plans should establish a guaranteed base interest credit of no less than 4%, which preserves value during low-return periods. In addition, an upside-sharing formula should be implemented to allow employees to benefit modestly from market gains, while still capping excessive liability growth. For example, the plan could credit a base 4% plus 50%–75% of returns above that level, up to an 8%-9% maximum crediting rate.

This combination approach creates a smoother accrual pattern and strengthens the link between asset performance and plan liabilities—critical for funding stability. Moreover, using a multi-year average return (e.g., a five-year rolling average) to determine the upside sharing portion can reduce volatility in employee account growth and employer funding obligations.

#3 ALIGN THE EXPECTED INTEREST CREDIT WITH THE PLAN'S ASSUMED RATE OF RETURN

To prevent accumulating actuarial mismatches, plans should ensure that the long-term expected interest credit is at or below the plan’s assumed rate of return. If the interest credit is set too high relative to actual investment performance, the employer will be required to make additional contributions to fund the gap, undermining the cash balance model’s primary advantage. Plans can use actuarial modeling and stochastic analysis to evaluate how different crediting structures perform under various return environments. Where feasible, setting the expected ICR to be 50–100 basis points below the return assumption is advisable.

#4 USE A SHORT, LAYERED AMORTIZATION POLICY TO ADDRESS UNFUNDED LIABILITIES

Cash balance plans are not immune to funding risk. Deviations from assumptions—such as changes in turnover, salary growth, or investment returns—can result in unfunded liabilities. These should be amortized using a level-dollar method over a closed period not to exceed the plan member's average remaining service life (typically 10–15 years). Layered amortization policies, in which each year's new unfunded liability is tracked and paid off separately, are especially effective at preventing pension debt from compounding over time. Plans should avoid open-ended or excessively long amortization schedules, which defer costs to future taxpayers and increase interest burdens.

#5 MAKE LIFETIME ANNUITIES THE DEFAULT DISTRIBUTION OPTION, WITH FLEXIBILITY FOR LUMP SUMS

Although portability is a significant advantage of cash balance plans, the long-term policy goal should still be to ensure lifetime income in retirement. To that end, best practice plans should offer a lifetime annuity as the default benefit distribution. Lump-sum distributions should remain an option for members who prefer liquidity, but defaulting into annuitization helps preserve financial security in retirement, especially for those with limited financial planning capacity. The annuity conversion rate should be set transparently, ideally aligned with or slightly below the plan's assumed return to encourage annuitization while avoiding excessive cost to the plan sponsor.

#6 REQUIRE IMMEDIATE VESTING OF EMPLOYEE CONTRIBUTIONS AND NO MORE THAN FIVE-YEAR VESTING FOR EMPLOYER CREDITS

To maximize portability and remain appealing to a mobile workforce, employer pay credits should vest no later than five years of service. Immediate employee contribution vesting and credited interest should be universal. Rapid vesting supports workforce recruitment while still offering a reasonable service period before employer-funded benefits become portable. Plans with vesting schedules beyond five years risk discouraging participation among younger or mid-career hires, particularly in high-turnover fields like education or public safety.

#7 INSTITUTE TRANSPARENT GOVERNANCE AND REGULAR EXPERIENCE REVIEWS

Sound governance is essential to a cash balance plan's stability and credibility. Plan oversight boards should include employer representatives, employee members, and independent financial experts. These boards must have the authority to adjust non-core plan parameters (such as pay credits, ICR formulas, and annuity conversion rates) in response to changes in funding or workforce conditions. Regularly scheduling actuarial experience studies—at least every three years—is critical for evaluating whether assumptions remain reasonable. Plans should also adopt transparent reporting standards and stress-testing protocols to evaluate their resilience under various economic conditions.

PART 5

CASH BALANCE PLANS ACROSS THE STATES

CALIFORNIA STATE TEACHERS

Launched initially in 1995 for part-time teachers and extended in 2000 to full-time educators, CalSTRS' Cash Balance Benefit Program offers a hybrid alternative to the traditional defined benefit pension plan. The program has participants contributing 4% (part-time) or 8% (full-time), matched equally by employers. The account accrues interest annually based on the 30-year U.S. Treasury bond rate's prior 12-month average, with the potential for higher crediting if the plan attains funding levels above 111%. Upon retirement, participants can choose between a lump-sum payment or various annuity options—ranging from life-only to 100%, 75%, or 50% survivor annuities, as well as term-certain payouts over 3–10 years. Assets accumulated are fully protected, guaranteed by the plan's trust.

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM

Implemented in 2012 and mandatory for hires on or after January 1, 2015, KPERS Tier 3 includes state employees, local government staff, and educators. Employee contributions escalate with tenure: 3% during years 1–5, 4% in years 6–11, 5% in years 12–23, and 6% after 24 years. Employer contributions follow an actuarially determined rate, subject to a

statutory cap. Accounts earn a guaranteed 4% interest annually, and members receive 75% of any returns above a 6% threshold. At retirement, benefits can be taken as annuity through KPERS—with an option to withdraw up to 30% in a lump sum—or as a full lump sum. Members may also allocate part of their account toward an automatic cost-of-living adjustment.

KENTUCKY RETIREMENT SYSTEM

Launched in 2013 for employees—state, local, public safety, judges, and legislators—hired after January 1, 2014. Workers contribute 5%, while public safety employees contribute 8%; employers match at 4% and 7.5%, respectively. All accounts receive a guaranteed 4% interest credit, with upside-sharing of 75% of returns exceeding that rate. At retirement, participants can choose between a life annuity actuarially equivalent to their cash balance accumulation or a lump-sum distribution.

KENTUCKY TEACHERS RETIREMENT SYSTEM

Introduced in 2021, this hybrid model (DB + Cash Balance) covers teachers hired after January 1, 2023. Both teachers and employers contribute a modest 2% each. Interest is credited based on the 30-year Treasury bond rates rolling five-year average. For benefit payments, KTRS offers several options including a pension annuity, time-defined guaranteed annuities, or a lump-sum payout.

NEBRASKA COUNTY AND STATE RETIREMENT SYSTEM

This plan has covered county and state employees hired after 2002, with pre-2002 hires allowed to transfer in from the state's DC plan. State employees pay 4.8% and county employees pay 4.5%, with employers contributing 156% and 150% of those rates, respectively. Accounts earn a 5% interest floor, with the cap tied to the federal mid-term rate plus 5%; during overfunding periods, additional board-approved credits may be granted. At retirement, options include annuity, lump sum, or combining annuity with a portion allocated to automatic COLA purchase.

TEXAS EMPLOYEES RETIREMENT SYSTEM

The Texas Employees Retirement System (ERS) places employees hired on or after September 1, 2022 into a cash balance, referred to as Group 4 ERS participants.

Under this arrangement, employees contribute 6% of their monthly pay, while the state contributes 9%, with an additional 0.5% from individual agencies. The plan guarantees a minimum 4% interest credit each year, with the potential for additional "gain-sharing" credits when the ERS pension trust performs well—typically adding up to 3% more based on returns over a prior five-year period. At retirement, ERS further enhances portability and retirement income stability by matching the employee's account balance at 150%—or 300% for law enforcement, custodial staff, and similar roles with 20+ years of service.

TEXAS COUNTY AND DISTRICT RETIREMENT SYSTEM

Founded in 1967, TCDRS encompasses county and special-district workers participating through their employer. Employee contributions vary from 4% to 7%, while employer contributions are actuarially determined. The plan provides a fixed 7% interest credit. At retirement, benefits are provided via a lifetime annuity—based on account balance plus employer match—or as a partial or full lump sum.

TEXAS MUNICIPAL RETIREMENT SYSTEM

Dating back to 1947, TMRS covers city employees in participating municipalities. Employees contribute between 5% and 7%; employer contributions are actuarially determined. A guaranteed 5% interest credit is applied, and, during surplus years, the TMRS Board may grant additional benefits. Payout options include a lifetime annuity founded on combined balances, or partial/full lump sums.

PART 6

CONCLUSION

Public employers around the country are considering and turning to various alternative retirement plan designs. States like Texas, Nebraska, and Kansas have found that a cash balance plan is a great way to provide a valuable and attractive retirement benefit, while also addressing major challenges that have contributed to severe underfunding in public retirement plans.

A properly structured cash balance plan—like a traditional pension plan—provides a guaranteed benefit to retirees, while providing better portability and comparably optimal benefits for younger and mid-career employees. It also gives employees a straightforward, simple-to-understand account balance and allows assets to be professionally managed. Guaranteed lifetime payment options are also a possibility through annuities.

A cash balance plan's benefit structure, designed properly, can also help reduce funding risks by linking the plan's promised benefits with its investment performance and the assumed rate of return. Ultimately, a cash balance plan is still, by definition, a defined benefit pension, with the employer obligated to provide the promised benefits. However, reasonable actuarial assumptions and responsive funding policies can and should be employed to ensure long-term solvency and cost management.

ABOUT THE AUTHORS

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