Cash Balance Hybrid Plans

Risk-sharing plan design feature

A retirement benefit based on an account balance with a credited investment return that is lower than the plan's expected investment return, determined actuarially based on the retiree's age at retirement, and that may share positive investment experience with plan participants.

A cash balance (CB) plan is an employer-sponsored retirement benefit combining elements of both defined benefit (DB) and defined contribution (DC) plans. Compared to DB plans, CB plans place more risk—especially investment and longevity risk—with plan participants. As with DB-DC hybrid plans (discussed on page 21), CB plans also provide a fixed level of retirement income, combined with a level of retirement income that is variable. Unlike DB-DC plans, which are made up of two distinct plans, CB plans provide retirement income from a single source, i.e., the cash balance plan itself.

As with DB plans, CB plans require participants to reach a designated age, years of service, or both, in order to qualify for a retirement benefit. CB plans also provide a lifetime retirement benefit once the plan participant qualifies and retires, and—like DB plans—cash balance plan assets are pooled and professionally invested in diversified portfolios. CB plan participants do not manage or invest their assets, and their lifetime benefits are ultimately based on investment credits and actuarial assumptions and methods used to annuitize the cash balance at retirement.

CB plan retirement benefits are determined by the value of the participant's retirement account (their cash balance) and their age at retirement. By contrast, DB plans use a formula that includes the plan participant's years of service, average salary, and a multiplier. The benefit from a CB plan is determined by annuitizing the participant's cash balance at retirement. The older the participant, the higher the benefit or annuity will be. This manner of determining the benefit level in a CB plan is more consistent with that of a DC plan in cases when a DC plan is annuitized. In practice, few DC plans are actually annuitized.

CB plans feature hypothetical participant accounts, also known as notional accounts, whose balance is based on the sum of contributions paid into the account, typically by employees and employers, and the annual investment credits applied to those contributions. A CB plan normally provides a guaranteed minimum annual rate of interest credit, such as 4.0 percent, which is specified as part of the plan's design, and can be changed only by its governing authority.

The annual interest credit is the amount that CB accounts are increased each year (beyond contributions by employers and employees), regardless of the plan's actual investment return. Among CB plans in the public sector, annual account balance credit rates range from less than 3.0 percent up to 7.0 percent. CB plans may apply a higher credit rate to ac-

CB plan retirement benefits are determined by the value of the participant's retirement account (their cash balance) and their age at retirement

counts when the plan's investment experience is strong, and as shown below, some public sector CB plans regularly do so.

A cash balance plan reduces the employer's investment risk by promising a retirement benefit that relies on an investment credit that is characteristically lower than the expected investment return of a typical defined benefit plan. **Compared to a DB plan, a CB plan places more longevity risk on plan participants by providing a retirement benefit that is based on the employee's age at retirement.** For example, an employee who retires at age 65 will receive a larger benefit than one who retires at age 55 with the same cash balance amount: actuarially, the younger retiree is expected to live longer and therefore will receive more benefit payments, making the actual cost to the plan identical for each retiree. By contrast, a typical DB plan may reduce benefit payments for early retirement but otherwise places longevity risk on the employer, as the amount of a DB plan benefit is not based on the employee's age at retirement. The exception is when the retiree selects some type of joint annuity option.

Relatively few states and cities sponsor CB plans for their employees, but this number is growing: since 2002, three states—Kansas, Kentucky, and Nebraska—have added new CB plans. A listing of statewide CB plans, with information describing their terms and benefits, is provided below.

CB plans in use among states

The following discussion briefly describes the statewide cash balance plans that are currently in place for broad employee groups, and the accompanying table, *Key Characteristics of Cash Balance Plans*, presents key facts about each plan.

Texas

The two oldest active CB plans in the public sector are the Texas Municipal Retirement System (created in 1947) and the Texas County & District Retirement System (created in 1967). These are large statewide retirement plans covering tens of thousands of plan participants. As of fiscal year 2017, the TMRS funding level is approximately 87 percent, with an average employer contribution rate of 13.5 percent. The TCDRS has an actuarial funding level of 89 percent and an average employer contribution rate of 12.3 percent. As with a typical DB plan, the funding shortfall in these plans is caused by actuarial experience that differs from expectations. Although each plan has a unique actuarial experience, these shortfalls are due chiefly to variances in each plan's demographic and financial experience relative to actuarial assumptions.

The TMRS and TCDRS are structured to give employers flexibility in the design of their retirement plan, to help employers meet their individual human resources management needs. The systems administer agent plans, meaning that each of their hundreds of employer members have their own actuarial experience and plan cost, rather than sharing an actuarial experience and costs with other employers. TMRS and TCDRS also permit their employer members to select benefit levels from a prescribed range of choices, including the normal retirement age, vesting period, and years of service needed to qualify for a normal retirement benefit. Employers may also select from a range of options for employee contribution rates, and employers may elect whether or not provide a COLA, and if so, at what level.

California

In addition to its primary DB retirement plan, the California State Teachers' Retirement System (CalSTRS) administers two cash balance

plans: one for part-time community college employees and one that supplements the DB plan for full-time educators.

The CB plan for community college employees was created in the 1990s to provide retirement benefits for part-time employees. The plan covers approximately 40,000 members, nearly all of whom are active participants, as the plan is young and most participants have not reached retirement eligibility. As of 2017, the plan's actuarial funding level was over 115 percent.

The other CalSTRS plan is the Defined Benefit Supplement (DBS) plan. CalSTRS members who participate in the DB plan are also required to participate in the DBS plan, which is a supplemental cash balance plan. The DBS plan was created in 2000 to provide supplemental retirement benefits to members of the DB program for earnings that cannot be used for determining the benefit under the DB plan. The DBS covers approximately 640,000 members, around two-thirds of whom are active plan participants. The plan also has about 63,000 retirees. Only CalSTRS DB plan members who have retired since 2001 receive some benefit from the DBS plan. As of 2017, the plan's actuarial funding level was about 118 percent.

The annual interest credit on both CalSTRS CB plans is linked to the U.S. Treasury rate, resulting in a more modest interest credit compared to other public sector CB plans. The CalSTRS board considers paying an additional earnings credit (AEC) above the minimum guaranteed rate when the plan's funding level is at least 113 percent; the CalSTRS board has regularly distributed an AEC.

Nebraska

Cash balance plans in Nebraska became effective in 2003 for new state hires and newly hired employees of most counties in the state, replacing the DC plans established in the 1960s provided for previously hired employees. As of 2018, the Nebraska State CB plan had an actuarial funding level of 104.2 percent, and the County CB plan had an actuarial funding ratio of 107.5 percent.

Relatively few states and cities sponsor CB plans for their employees, but this number is growing

Nebraska statutes permit the Public Employees' Retirement Board to grant benefit improvements (which take the form of additional interest credits applied to plan accounts) if the plans have no unfunded actuarial accrued liability, and as long as the improvement does not cause an increase in the required cost of the plan above a designated threshold. (This provision is consistent with COLA provisions in South Dakota and Wisconsin, discussed elsewhere in this paper, that require that provision of a COLA will not impair the plan's funding condition.) Since the plans' inception, state and county plan participants have received benefit enhancements—interest credits above the guaranteed minimum—seven times, or in one-half of the available years. The average annual increase during this period has been approximately 2.5 percent.

Kansas and Kentucky

The Kansas PERS CB plan was established in 2011, applying to all new hires beginning January 1, 2015. The Kentucky CB plan was established in 2013 for new state and local government employees (not teachers) hired beginning January 1, 2014. The new CB plans in both states replaced DB plans previously provided to employees; assets for both CB plans are pooled with their respective systems' legacy DB plans and do not receive a separate actuarial valuation.

Key Characteristics of Cash Balance Plans

	Year plan approved	Employee groups affected	Contributions	Rate of return applied to cash balances	Benefit payment options
CA State Teachers	1995 for the Cash Balance Benefit Program; 2000 for the Defined Benefit Supplement	The Cash Balance Benefit Program is optional for part-time and adjunct educational workers; the Defined Benefit Supplement is a cash balance plan provided to full-time educators	EEs in the Cash Balance Benefit Program typically pay approximately 4% of earnings, depending on local bargaining agreements; Defined Benefit Supplement EEs contributed 2% from 2001-2010. Beginning in 2011, ER and EE contributions to the Defined Benefit Supplement are 8% each on compensation in excess of one-year of service credit. ER must contribute at least 4% for Cash Balance Benefit participants and the combined EE/ER rate must be at least 8%	Guaranteed minimum interest rate is based on 30-year U.S. Treasury bonds for the period from March to February immediately prior to the plan year (2.89% for plan year 2018-19)	Lump-sum and/or monthly lifetime annuity or period certain monthly annuity
KS PERS	2012	Mandatory for EEs of state and local government, including education employees, hired after 1/1/15	EEs contribute 6% ER pay credits are between 3-6% depending on how long the member has been employed. ER contributions are actuarially determined (subject to statutory caps)	Members are guaranteed an annual rate of return of 4% on their accounts. Accounts may also receive a dividend credit equal to 75% of the investment returns above 6%, calculated on a 5-year rolling average	Retiring participants may annuitize their cash balance and may elect to take up to 30 percent as a lump sum. Participants may also elect to use a portion of their balance to fund an auto-COLA
KY RS	2013	Mandatory for new state and local EEs, judges, and legislators who become members on or after January 1, 2014	EEs contribute 5%; public safety EEs contribute 8% State contributes 4%; 7.5% for public safety EEs	Employee accounts are guaranteed 4% annual return; accounts also receive 75% of all returns above 4%	Member may choose annuity payments, a payment option calculated as the actuarial equivalent of the life annuity, or a refund of the accumulated account balance

* EE = employee; ER = employer

	Year plan approved	Employee groups affected	Contributions	Rate of return applied to cash balances	Benefit payment options
NE County and State	2002	Mandatory for county and state EEs* hired after 2002 and those hired previously who elected to switch from the DC plan	State EEs contribute 4.8%, county EEs contribute 4.5% State contributes 156% of EE rate; counties contribute 150% of EE rate	Based on the federal mid-term rate plus 1.5%. When the mid-term rate falls below 3.5%, EEs receive a 5% minimum credit rate. When favorable returns combine with an actuarial surplus, the governing board may approve a dividend payment to EE accounts	Retiring participants may annuitize any portion of their cash balance and take a lump sum of any remainder. Members electing an annuity may also elect to take a reduced benefit with an automatic annual COLA
TX County and District	1967	Mandatory for EEs of 600+ counties and special districts that have elected to participate in the TCDRS	EEs pay 4%, 5%, 6%, or 7% depending on ER election. ERs pay normal cost plus an amount to amortize the unfunded liability; as of 2017, the plan's amortization period is 20 years	7% (set by statute), used to reduce ERs' costs. Members' accounts receive an annual interest credit of 7% as specified by statute.	Lifetime annuity based on EE final savings account balance, less any EE-elected partial lump-sum payment, plus ER matching
TX Municipal	1947	Mandatory for EEs of 800+ cities that have elected to participate in the TMRS	EEs pay 5%, 6%, or 7%, depending on ER* election ER pays 100%, 150%, or 200% of EE rate, also depending on ER election, plus an needed amount to amortize UAAL within a 25-year closed amortization period	5% (set by statute): The TMRS Board determines the allocation of any excess amounts; the board is authorized to distribute such amounts a) to reduce cities' unfunded liabilities; b) to EEs' individual accounts, and/or c) to a reserve to help offset future investment losses	Lifetime annuity based on EE final account balance, including ER matching and other credits, less any partial lump sum, depending on EE election

* EE = employee; ER = employer

DB-DC Hybrid Plans

Risk-sharing plan design features

A traditional defined benefit pension plan with a reduced benefit accrual rate, combined with a defined contribution plan.

As discussed in the NASRA Issue Brief: State Hybrid Retirement Plans, one of the earliest forms of risk-sharing in retirement plans is the DB-DC hybrid plan, an employer-sponsored retirement benefit that features a traditional defined benefit (DB) plan coupled with a separate defined contribution (DC) plan. Although the two plans operate independently of one another, they typically are administered by the same retirement system; both are mandatory from a participation perspective and they employer and employee contribution requirements vary among systems. Like cash balance plans (see page 15), DB-DC plans provide a retirement benefit tied partly to market performance: the DB portion of a DB-DC plan is fixed and guaranteed, based on the employee's salary and length of service; and the DC portion is variable, based on the amount of contributions, the investment performance of invested contributions, and the employee's decision regarding the treatment of DC plan assets after terminating or retiring.

Because the DB plan component of DB-DC plans provides a lower multiplier than most other public sector DB plans, this component provides a more modest pension benefit than most public sector DB plans. For example, a DB-DC plan that features a retirement multiplier of 1.0 percent will produce a promised benefit equal to one-half of the amount that would be provided by the same plan with a multiplier of 2.0 percent. The employer's level of risk in such a plan is half of what it would be under that same plan. Other than the lower multiplier, with its lower benefit and reduced level of employer risk, the DB component of DB-DC plans sponsored by states generally is identical to stand-alone DB plans: they provide a lifetime benefit that is based on the employee's length of service and final average salary.

DB-DC plans provide a retirement benefit tied partly to market performance: the DB portion of a DB-DC plan is fixed and guaranteed, based on the employee's salary and length of service; and the DC portion is variable, based on the amount of contributions, the investment performance of invested contributions, and the employee's decision regarding the treatment of DC plan assets after terminating or retiring

The DC plan component of DB-DC plans sponsored by states is similar to 401k plans in the private sector, placing all or most risk on the plan participant. DB-DC plan participants are responsible for making decisions regarding their investment choices and how their assets are managed, both during their working years and after they leave employment, whether through termination, retirement, disability, or death.

DB-DC plans provide a lifetime benefit that is based on the employee's length of service and final average salary

The oldest DB-DC plan is the one administered by the Indiana Public Retirement System, which since 1955 has maintained these plans for public school teachers, state employees, and employees of political subdivisions in the state that have elected to participate. The Indiana PRS investment function developed and maintains proprietary investment funds available only to plan participants.

More recently, in 1996, the Washington Department of Retirement Systems established a DB-DC plan for certain new hires. Since then, other states established new DB-DC hybrid plans, either on an optional (meaning the employee could choose between the traditional DB plan or the DB-DC hybrid) or mandatory for new hires. Two states—Oregon and Rhode Island—established new DB-DC hybrid plans, in 2004 and 2011, respectively, switching many current active participants from a DB plan to the new hybrid plan. The more common method for establishing DB-DC hybrid plans is to require participation for new hires only and to permit existing DB plan participants to elect to join.

DC plans administered by the Washington Department of Retirement Systems as part of their DB-DC hybrid plans permit participants to invest in a portfolio that emulates the one in which DB plan assets are invested. This investment option provides participants with access to some asset classes, such as alternative investments that participants may not access otherwise, and at a relatively low cost.

Most plans provide life-cycle funds, which are funds that adjust the mix of investments in stocks and bonds based on a participant's age or projected retirement date. Each DB-DC plan maintains a default investment option for participants who fail to make an active election as to how their assets should be invested; default investments in many cases are life-cycle funds.

Similar to 401k plans, the DC component of DB-DC hybrid plans imposes all or most of the plan's risk on participants. The DC component places responsibility on participants for making investment choices and determining how the plan's assets are used upon termination, through changes in employment status, retirement, disability, or death.

Financing arrangements for both the DB and DC plan components vary by plan: for some plans, employers pay the full cost of the DB component, and in other cases, that cost is shared with employees. Similarly, cost-sharing arrangements for DC plans also vary.

The accompanying table, *Summary of Key Features of Select DB-DC Plans*, presents basic plan design and financing arrangements for selected DB-DC plans sponsored by states. Each of the DC plans listed provide a range of risk-based investment options, from conservative to aggressive. Some investment options are proprietary funds developed and maintained by the sponsoring retirement system, accessible only to participants in that plan. Other options provide access to retail mutual funds. Several plans offer access to a brokerage window, permitting participants to trade in individual equities and other securities.

The table also lists the withdrawal options available to participants who terminate or retire. Each plan permits participants to take all or part of their DC plan assets as a lump sum or to roll the assets over to another retirement plan. In addition, some of the plans permit annuitization of DC plan assets, which converts the assets into a lifetime retirement benefit. Annuities may be sponsored by the retirement plan, while in other plans, annuities are purchased through a third-party provider.

Summary of Key Features of Select DB-DC Plans

	DB benefit formula (having met age/service requirements)	DB plan contributions	Employer DC plan contributions	Employee DC plan contributions	DC plan investment options	Default DC plan investment options	DC plan withdrawal options
Arizona Public Safety Personnel	Graded multiplier ranging from 1.5% (with 15 years) to 2.5% (with 25 years) depending on years of service x years of service x final average salary = annual benefit	EE and ER contribute 50% of the total plan contribution rate	3.0%	3.0%	Menu of options including target date funds, index funds, mutual funds, and bond funds	Target date fund based on a retirement age of 65	Rollover, lump sum, annuity
Colorado Fire & Police Pension Plan	1.5% x years of service x highest average salary = annual benefit	The board of directors of FPPA annually determines the DB/DC split of the contributions to the plan.	Any excess amount not needed to fund the DB plan is contributed to the Money Purchase Plan.	Any excess not needed to fund the DB plan is contributed to the Money Purchase plan.	19 options, including a broad range of fixed income and equity funds, 11 target date funds, and a brokerage window	Age appropriate Target Date Fund	Lump sum, monthly periodic payments, monthly lifetime benefit, annuity from outside provider
GA Employees' RS	1% x years of service x final average salary = annual benefit	EE contributes 1.25% and ER contributes the remainder of the annual actuarially determined contribution rate	100% ER match on EE's 1st 1% of salary and 50% match on next 4% of salary for a maximum ER contribution of 3%	EEs hired before 7/1/14 auto enroll at 1% of salary contribution; EEs hired as of 7/1/14 auto enroll at 5% of salary; EEs may vary contribution rate up or down; participants may opt-out of the DC plan within 90 days of their date of hire	15 options ranging from conservative to aggressive, plus 6 lifecycle funds	Lifecycle funds based on age	Rollover, annuity, lump sum, partial lump sum, installments

Summary of Key Features of Select DB-DC Plans (continues)

	DB benefit formula (having met age/service requirements)	DB plan contributions	Employer DC plan contributions	Employee DC plan contributions	DC plan investment options	Default DC plan investment options	DC plan withdrawal options
Indiana Public RS	1.1% x years of service x final average salary = annual benefit	ER funds the DB benefit	None	3% of salary	7 options ranging from conservative to aggressive, and 10 target date funds, all administered by the retirement system	The Guaranteed Fund, which earns a fixed rate established annually by the Board	Annuity, rollover, partial lump sum and annuity, deferral until age 70½
Michigan Public Schools RS	1.5% x years of service x final average salary = annual benefit (normal retirement age is subject to change based on mortality tables)	EE contributes on a graduated scale based on pay; ER contributes an actuarially determined amount. New hires after 1/31/18 contribute 50% of the total plan contribution rate of 12.4%	ER matches 50% of EE's contributions, up to 1%	2% of salary	Choice of active and passive investment options, target date funds, and a brokerage window	Target Retirement Fund that matches the year the participant will be eligible to retire	Lump sum, consolidation from other plans, direct rollover to an IRA, periodic distribution
Ohio Public Employees' RS	1% x up to 35 years of service x final average salary + 1.25% x years in excess of 35 x final average salary = annual benefit	ER funds the DB benefit	None	10% of salary	16 OPERS-sponsored funds including core and target date funds, plus a brokerage window	Target date fund closest to the year the participant turns 65	Annuity, including partial lump sum, lump sum or rollover
Ohio State Teachers' RS	1% x years of service x final average salary = annual benefit	2% of EE and ER contributions fund the DB benefit	None	12% of salary	8 STRS Ohio-sponsored options ranging from conservative to aggressive plus a guaranteed return option and target date funds	Earliest target date fund	Annuity including partial lump sum, lump sum or rollover

	DB benefit formula (having met age/service requirements)	DB plan contributions	Employer DC plan contributions	Employee DC plan contributions	DC plan investment options	Default DC plan investment options	DC plan withdrawal options
Oregon PERS	Varies depending upon date of hire and which of 3 DB plans EE is enrolled in	ER funds the DB benefit	Optional	6% of salary	Effective 1/1/18: 10 Oregon PERS sponsored target date funds, Previously all DC plan contributions were invested in a single, pooled fund that mirrors the DB plan fund	Target date fund based on year of birth	Lump sum payment or in installments over a 5, 10, 15, or 20-yr period or the EE's anticipated lifespan
Rhode Island ERS	1% x years of service x final average salary = annual benefit	State EEs and teachers contribute 3.75% to the DB plan; muni EEs contribute 1% or 2% based on COLA choice; municipal police and fire contribute 9% or 10% based on COLA choice.	ER contributes between 1-1.5% for EEs covered by Social Security, and between 3-3.5% for non-covered EEs, depending on service as of 6/30/12	State and local EEs and teachers contribute 5% to the DC plan; 3% for municipal police and fire EEs not covered by Social Security	12 target date funds and 10 funds ranging from conservative to aggressive	Age appropriate target date fund	Lifetime annuity, lump sum distribution, or distribution in installments (rolling assets into an IRA or leaving assets in the plan).
Tennessee Consolidated RS	1% x years of service x final average salary (maximum annual pension benefit of $80k, indexed by CPI)	EE contributes 5% to the DB plan ER contributes 4%	ER contributes 5% to the DC plan	EEs contribute 2%, with opt-out feature	11 target date funds and 16 options ranging from conservative to aggressive	Age appropriate Target Date portfolio	Lump sum, periodic payments, minimum required distributions; beneficiaries may use a combination of more than one method
Utah RS	1.5% (2% for public safety/fire) x years of service x final average salary = annual benefit	ER pays up to 10% of pay, 12% for public safety/fire; if DB costs more, EE pays the difference.	ER pays into DC the difference between DB plan cost and 10% (12% for public safety). Currently 1.58% and 1.26%, respectively.	EE contributions optional. State employees may receive a match of up to $26 per pay period.	8 self-directed core funds ranging from conservative to aggressive. 12 target date funds; brokerage window.	Age-appropriate target date fund	After 4-year vesting period: lump sum, partial balance, periodic distribution, based on: time period, or rate of return assumption, or life expectancy.

Summary of Key Features of Select DB-DC Plans (continues)

	DB benefit formula (having met age/service requirements)	DB plan contributions	Employer DC plan contributions	Employee DC plan contributions	DC plan investment options	Default DC plan investment options	DC plan withdrawal options
Virginia RS	1% x years of service x final average salary = annual benefit	EE contributes 4% to the DB plan; ER contributes an actuarially determined amount to fund the DB benefit (less employer DC contributions)	Mandatory ER contributions of 1% - increases with EE contributions up to 3.5% maximum	EEs may contribute up to 5% to the DC plan (1% minimum)	11 options ranging from conservative to aggressive, plus 10 target date funds.	Target date funds based on the participant's age at enrollment	All or part of the balance may be taken as a lump sum, in periodic payments, or as an annuity; or rolled over to another retirement account
Washington Department of RS	1% x years of service x final average salary = annual benefit	ER funds the DB benefit	None	5% to 15% of salary depending on EE	Either the total allocation portfolio, which mirrors DB plan fund, or 7 self-directed funds ranging from conservative to aggressive, plus target date funds	Target date funds based on the participant's age at enrollment	Lump sum, direct rollover, scheduled payments, personalized payment schedule, and annuity purchase