

Pension defrost

Is it time to reopen DB pension plans—or at least stop closing and freezing them?

In brief

- In the U.S., corporate sponsors of private defined benefit (DB) pension plans seem to have developed a collective blind spot about the potential value of maintaining a well-funded pension.
- DB plans offer a tax-advantaged, investment-supported mechanism by which sponsors can finance retirement benefits—an irreplaceable element of delivering retirement security to a modern workforce.
- DB plans are fully funded, in aggregate, and sponsors have developed the expertise to manage pension assets to out-earn liabilities while imposing minimal financial risk.
- The large mandatory contributions that characterized recoveries from previous pension funding drawdowns are no longer a significant threat because plan sponsors operate in a more benign regulatory environment.
- Commonly used measures of pension risk are flawed, leading sponsors to overstate the benefits of getting rid of their pension plans through pension risk transfer (PRT) transactions, and to understate the potential benefits of maintaining prudently invested plans.
- We would encourage sponsors to consider the numerous business reasons for keeping their plans open—or even reopening them, if closed. Closing, freezing and terminating plans may offer far less value than the conventional wisdom would suggest.



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Seeing past the blind spot

Even people with perfect vision have a blind spot. The site where the optic nerve passes through the retina can't perceive light. To counteract this effect, the brain uses surrounding information to fill in the blank. We literally cannot see what's in front of us, and we're not even aware of it. What matters most, it turns out, is the ability to make inferences from the available data.

Likewise, the pension industry appears to have developed a collective blind spot: an inability to fully perceive the value that defined benefit (DB) plans can provide to participants and sponsors alike. Unfortunately, we have filled in this blind spot with dated assumptions, such as the notion that DB plans represent a disposable, noncore business that sponsors would be better off without.

We believe the conventional wisdom is biased toward historical shortcomings in the DB system that no longer exist and don't stand up to critical scrutiny. How, exactly, does a fully funded and de-risked pension plan burden its sponsor? Are we certain that DB plans are no longer a cost- and tax-efficient tool for employee retention and compensation? If DB plans are so easily replaced with defined contribution (DC) plans, why is the dominant trend in retirement benefit design to make DC plans more like DB plans?

Are defined benefit plans poised for a comeback? Perhaps. Before tackling that question, we consider the following three fundamental observations, which inform our analysis.

1. Industry headwinds have shifted, creating tailwinds.

Corporate plans have broadly returned to full funding, significantly reducing their required investment returns and corresponding risk budgets. Sponsors have developed the know-how to implement strategies that can outperform liabilities with very little funded status volatility or contribution risk. Importantly, funding rules have also become more flexible: Drawdowns in funded status, should they occur, have time to resolve naturally through asset returns; sponsors no longer need to make abrupt (and often large) mandatory contributions.

2. Well-funded plans can enhance corporate finance.

A well-funded DB offers the most cost-efficient mechanism to finance retirement benefits for employees. Running a low risk, well-funded plan can be accretive to earnings while also reducing corporate leverage. Contrary to conventional wisdom, a pension surplus is not simply a “trapped asset” on the balance sheet. Sponsors have several other mechanisms to capture the value of a pension surplus, up to and including the reintroduction of benefit accruals for current and future workers.

3. Plan sponsors can prosper by doing good. Retirement savings are clearly under pressure, and private DB plans may have a role—alongside DC plans and other savings vehicles—in helping participants achieve a secure retirement. The ability to offer a cost-effective annuity benefit is difficult to replicate in DC plans or the private market. In a competitive labor market, a retirement package that includes a traditional DB plan may prove attractive to current and future workers.

So what is stopping plan sponsors from forging a new path? If it is nothing more than a blind spot, then perhaps it can be fixed.

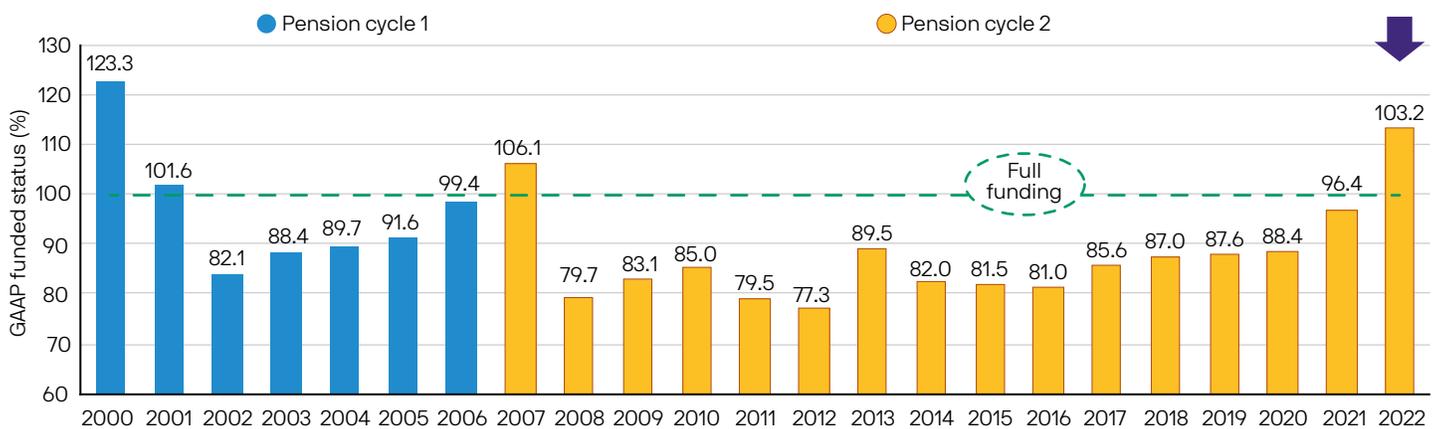
Industry fears about previous funding challenges linger

The negativity surrounding corporate pensions originated in the period of exceptional funded status volatility that began in 2001. Plans that had been in surplus at two points—before the dot-com bubble burst in 2000 and again before the global financial crisis (GFC) erupted in 2008—experienced a dramatic and costly collapse in funding (**Exhibit 1**).

Sponsors quite understandably bear some scars from the consequences of those funding drawdowns and the costly recoveries that followed. Share price volatility, credit rating scrutiny and—perhaps most significantly—large cash contributions have imposed significant costs on plan sponsors over the past two decades. Since the GFC, more

Corporate pensions are back at full funding

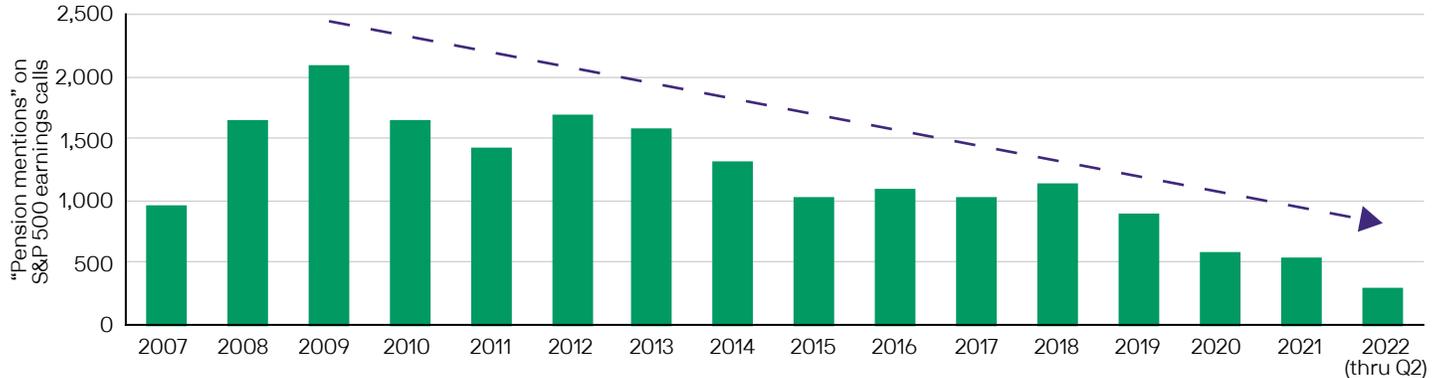
Exhibit 1: Top 100 U.S. corporate pensions by GAAP funded status (%)



Source: 10-K annual reports, J.P. Morgan Asset Management calculations; data as of October 31, 2022.

Wall Street is paying less attention to pensions

Exhibit 2: S&P 500 earnings call mentions of the word “pension”



Source: Earnings call transcripts, J.P. Morgan Asset Management calculations; data as of June 30, 2022.

than USD 1 trillion of cash contributions have been diverted into U.S. corporate DB plans. Given this backstory, it’s not difficult to see why many sponsors are inclined to wash their hands of defined benefit pensions altogether.

But what’s done is done. Sponsors have put in the hard work to rehabilitate their pension plans and walking away now would mean abandoning those gains and the far more positive outlook they portend. Persisting with this outmoded view ignores both the massive improvement in funded status and the reduction in asset liability risk that have taken place. Simply put, the challenges faced by plans in years past have been overcome. Evidence of this change can be seen in the decline of pension discussions on quarterly earnings calls (**Exhibit 2**).

Funding improvement is a reason to stay, not an excuse to go

Although the universe of plan sponsors has been fully funded before, previous episodes occurred in eras when pension risk management was nascent and not as widely understood or adopted. More recently, sponsors have developed an evolved investment toolkit to help their plans outperform liabilities with very little funded status volatility or contribution risk. We refer to this model as “pension stabilization”¹ because it focuses on

the efficiency of the overall pension strategy (instead of solely focusing on risk minimization) and thereby avoids the steep “last-mile” de-risking costs endemic to hibernation-style strategies.

When we think about portfolio construction, determining the target level of returns is perhaps the single most important consideration for plan sponsors. One of the great benefits of being fully funded or even overfunded is that the return needs of the plan decline, allowing managers to take a far more efficient and low risk investment approach. The larger the asset base relative to the same set of pension liabilities, the lower the returns needed to maintain or grow funded status.

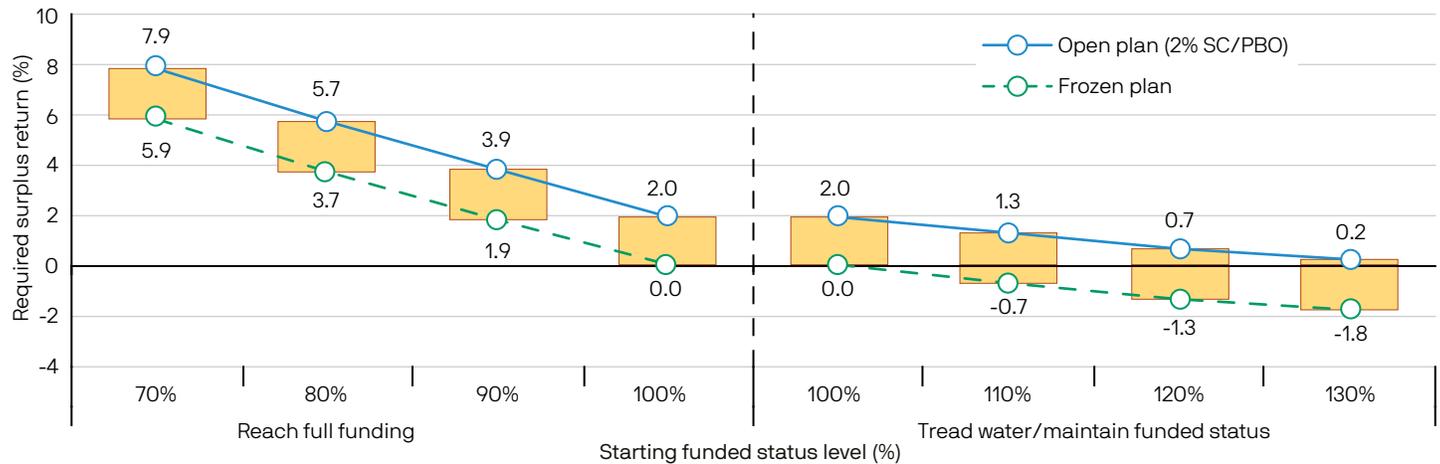
Many sponsors behave as if being 100% funded is the natural limit to these benefits, assuming that they would be fully de-risked at that point. In fact, the opposite is true: The benefits of better funding compound as the plan moves into a surplus position and continue to grow in value thereafter—if the sponsor positions the plan to capture them. Paying benefits from an overfunded plan adds to its funded status and enhances the plan’s ability to take on a prudent level of investment risk. Making use of the additional return to build up the surplus or to restart benefit accruals (or both) becomes an achievable goal.

To illustrate this point, we have calculated the surplus return needs (returns over and above liability growth) at varying funded status levels for both a frozen plan and an open plan, with each accruing new benefits at a rate

¹ Jared Gross and Michael Buchenholz, “Rethinking the Pension Plan Endgame,” October 2021, and “The Roadmap to Pension Stability,” March 2022, J.P. Morgan Asset Management.

For both frozen and open plans, surplus return needs decline as funded status improves

Exhibit 3: Required surplus returns over a 10-year period for a frozen plan vs. an open plan of varying initial funded status (assuming no contributions)



Source: J.P. Morgan Asset Management.

of 2% of the projected benefit obligation (PBO) per year (Exhibit 3). The calculation has a 10-year time horizon, assumes no cash contributions and solves for two different objectives: to reach full funding and to “tread water” to maintain funded status.

This analysis underscores how the impact of improved plan funding could support the reopening of a DB pension plan:

- First, consider an open plan starting at a funding level of 80% (a scenario similar to the position of many plans after the GFC). Such a plan would need asset returns of 570 basis points (bps) above liabilities to reach 100% funded status over 10 years. In the current market, this would require returns of 11% per year over 10 years—a staggering target. Any plan pursuing such an ambitious portfolio strategy would also face an unacceptably high probability of large funding drawdowns. In practice, a plan’s sponsor would likely choose to make significant contributions and curtail benefit accruals while opting for a more prudent asset allocation.
- Next, consider a well-funded plan (110%)—a position much more likely in today’s environment. If frozen, such a plan could actually earn less than its liabilities and still maintain funded status, although this outcome would be financially suboptimal.

Alternatively, supporting new benefit accruals requires only a modest amount of outperformance (less than 150bps), which would be readily available using a low to moderate risk stabilization approach.

Given this very achievable outcome, plan sponsors should ask themselves: Why accept minimal returns simply to justify keeping a plan closed or frozen when the readily available alternative is a well-funded, prudently managed plan that can generate sufficient returns to cover the cost of new benefits?

Interest rate tailwinds provide momentum to funding benefits

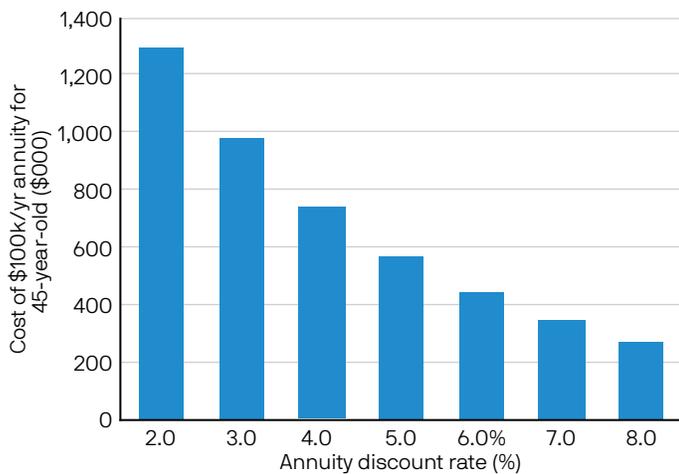
Rising interest rates, which generally reduce the value of liabilities faster than assets, are providing the biggest tailwind for pension funding in years. Higher funding, in turn, is often used as a justification for de-risking plans relative to their existing liabilities. But extreme de-risking (commonly referred to as “hibernation”) exhibits diminishing returns and increasing financial inefficiency.

Why spend the surplus subsidizing an inefficient asset allocation? Instead, a sponsor should consider the flexibility that higher rates afford—specifically, the ability to finance new benefits at a lower cost. Pension discount rates hit their lows during the depths of the COVID-19

pandemic in July 2020, dipping below 2.30% for some plans. At this level, the cost of promising an annuity of USD 100,000 per year at retirement to a 45-year-old would be approximately USD 1.2 million in present value under U.S. generally accepted accounting principles (GAAP). At the opposite extreme—using levels reached during the GFC, when discount rates spiked above 8.50%—the cost for promising the same annuity benefit would be roughly USD 240,000, or 80% cheaper (**Exhibit 4**).

The cost of providing retirement annuity declines dramatically at higher rates

Exhibit 4: Pension discount rate and annuity pricing



Source: ICE, J.P. Morgan Asset Management. Annuity calculations assume a 45-year-old male retiring at age 62 using mortality data from the Society of Actuaries' Pri-2012 private plans' mortality tables projected to 2021 with the mortality improvement scale (MP-2021) generational scale.

An open pension plan that is accruing service costs can turn a higher rate environment to its advantage by underwriting new benefits at lower cost. For plan sponsors, providing retirement benefits at a reduced cost while maintaining a prudent level of risk (vs. existing liabilities) offers a compelling trade-off. The higher discount rate reflects a lower book value for the annuity benefit being offered, while the overall investment strategy determines the ultimate price to the sponsor. This approach does not argue for taking on excessive risk. A well-diversified, low risk asset allocation is capable of generating returns that not only match the discount rate but comfortably exceed it.

Lower cost, higher value: Defined benefit or defined contribution?

Providing a true comparison of the costs of delivering retirement benefits through different plan types is challenging but doable. We generally find that—for an identical level of benefit value—a DB plan's ability to capture excess returns over the liability makes it, on average, less costly over time than a DC plan, which is 100% paid out of the sponsor's pocket.

Perhaps inevitably, the higher fixed costs of a DB plan are better aligned with bigger organizations, which can spread these expenses across the sponsor and a large pool of participants. DC plan design can be very simple for small businesses, but complexity multiplies as an organization's size and diversity of needs grow.

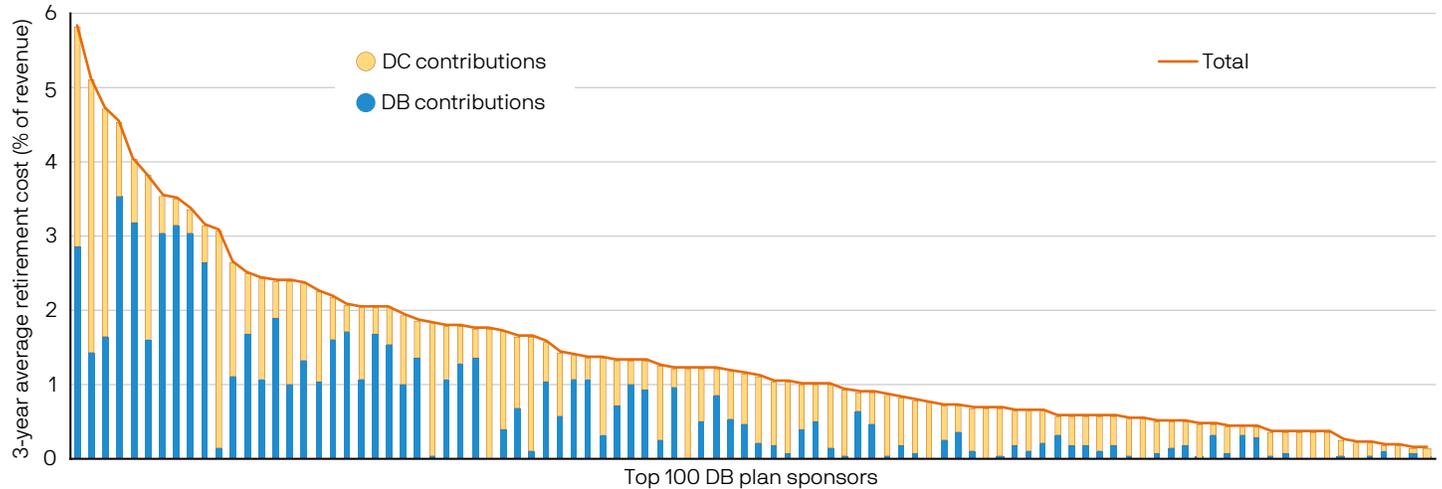
Given the challenges of coming up with a fair comparison of retirement costs across both plan types, we considered providing an analysis of accounting measures. Even here, the solution is elusive: U.S. GAAP accounting for pensions hides the true economics within a veritable blizzard of pension smoothing and delayed recognition of gains and losses. These elections vary from firm to firm and even plan to plan.

However, looking at employer cash contributions to plans over longer time horizons gives us a more practical basis for cost comparison. More than 60% of the 100 largest DB plan sponsors spent more on DC plans than on DB plans over the prior three years (**Exhibit 5**).

This result is not surprising: As 401(k) plan adoption and participation have grown, so have employer contributions. Since 1993, the employer contribution has grown fairly consistently at a compound rate of approximately 5.9%. We estimate that in 2020 total employee contributions to DC plans reached USD 260 billion, while employer contributions totaled more than 60% of that level, or USD 160 billion (**Exhibit 6**). But what about a like-for-like comparison? After all, these sponsors are offering a wide array of benefits to different employee groups without a consistent level or area of coverage.

Over a three-year period, a majority of the biggest U.S. sponsors spent more on DC than on DB plans

Exhibit 5: Top 100 plans: DB vs. DC contributions as % of company revenue (3-year average)



Source: U.S. Department of Labor 5500 filings, 10-K annual reports, J.P. Morgan Asset Management; data as of December 31, 2021.

Accounting for retirement plan costs

The most obvious source of value to the DC sponsor is shifting asset performance risk to plan participants, but this perspective considers only the potential downside. There is value to the upside as well, and this can only be captured in a DB plan.

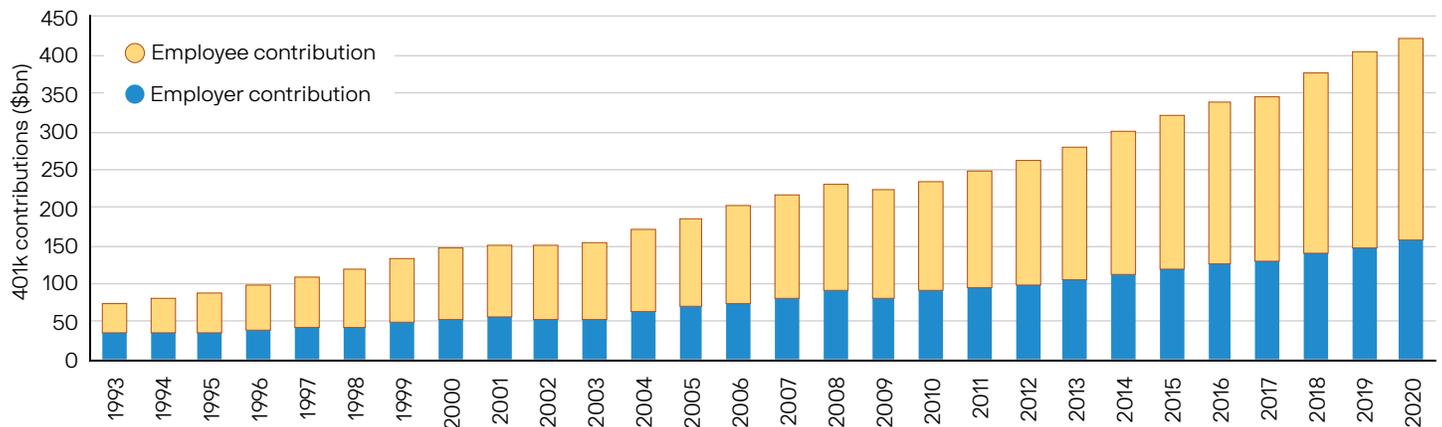
As we illustrate with a simple model, over longer horizons the same level of retirement benefit can be funded more cheaply through a DB plan than a DC plan.

The fundamental reason is that DC contributions must be fully funded by the sponsor—in cash, every year—while DB benefits can be fully or partially self-financed through a combination of returns on existing assets and a more flexible contribution framework.

Exhibit 7 compares the long-term level of contributions and costs, over time, of two hypothetical plans: a legacy DB plan and a DC plan. The DB plan begins with a surplus (110% funded), consistent with many plans'

Employer and employee contributions are growing at an annualized 6%–7%

Exhibit 6: 401(k) contributions by employer and employee



Source: U.S. Department of Labor 5500 filings, J.P. Morgan Asset Management.

A well-funded and prudently managed DB plan can be less costly to a sponsor

Exhibit 7: DB vs. DC: 10-year cost comparisons example (in USD)

Metric	Legacy defined benefit plan	Defined contribution plan
Plan description	<ul style="list-style-type: none"> Plan is 110% funded: \$1,100mn of assets and \$1,000mn of GAAP liabilities Service cost is \$20mn per year (2% of PBO) Portfolio earns 1.5% surplus return with 4.5% surplus volatility 	<ul style="list-style-type: none"> Employer contributes \$20mn per year, equivalent to the annual new DB accruals
Average 10-year outcomes	<ul style="list-style-type: none"> \$31mn of minimum required contributions \$55mn net cost 	<ul style="list-style-type: none"> \$200mn employer contributions
95th percentile outcomes	<ul style="list-style-type: none"> \$149mn of minimum required contributions \$418mn net cost 	<ul style="list-style-type: none"> \$200mn employer contributions
5th percentile outcomes	<ul style="list-style-type: none"> No contributions 	<ul style="list-style-type: none"> \$277mn net cost

Source: J.P. Morgan Asset Management; data as of October 31, 2022. Net cost is defined as the sum of contributions plus any deficit/(surplus) needed to maintain the original level of overfunding in the DB plan.

current position today. Both have the same service cost rate of USD 20 million per year—the DC plan in the form of an employer contribution and the DB plan in the form of the present value of new benefit accruals.

For the purpose of this exercise, we assume the DB plan is running an investment strategy with an expected excess return over liabilities of 150bps and surplus volatility of 450bps. The DC plan’s investment options are irrelevant to the sponsor cost, since all risk and return are borne by the participants.

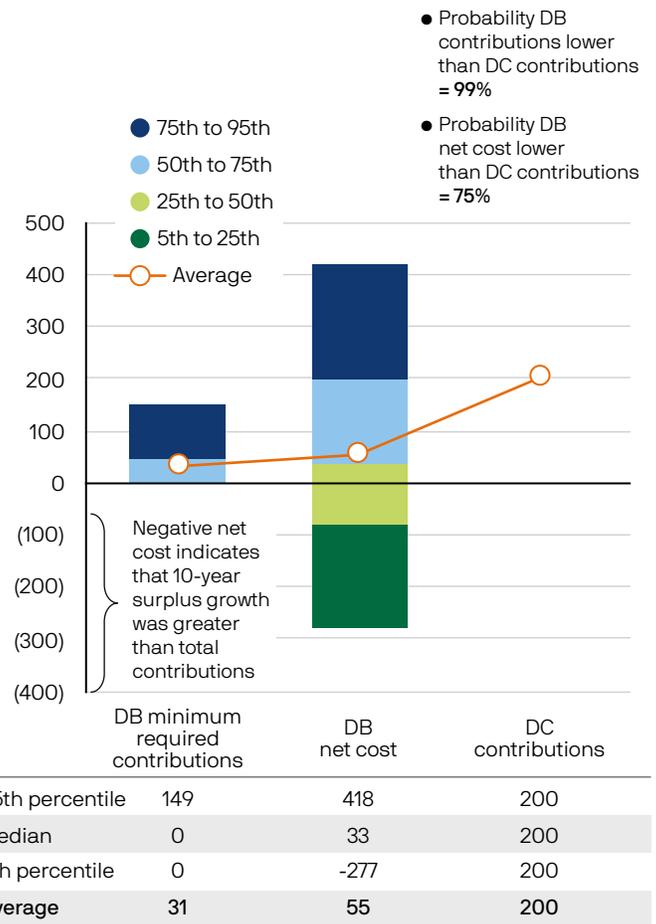
The results are telling. Over 10 years, the DC plan will cost the employer USD 200 million in cash, which represents the accumulated contributions of USD 20 million per year. In contrast, the DB plan’s outcomes are less certain but almost surely superior: The average level of 10-year minimum required contributions is roughly USD 30 million, or only 15% of the DC contributions.

Some variability exists around this estimate for the hypothetical DB plan because of the uncertain performance of both assets and liabilities. In a severe downside scenario, the DB plan could require USD 150 million of contributions (still only three-quarters of the cost of the DC plan). In a large number of scenarios, however, zero contributions would be needed for the DB plan to finance USD 200 million of new benefits.

In aggregate, we found that, compared with a well-funded and stabilized DB plan, there is a 99% chance that the DC contributions would be greater (Exhibit 8).

Hypothetical outcomes for sponsors of DB and DC plans indicate that in 99% of all scenarios the costs for the latter would be higher over 10 years

Exhibit 8: DB vs. DC: 10-year cost distribution examples



Source: J.P. Morgan Asset Management calculations; data as of October 31, 2022.

The low level of DB plan contributions is due in part to the initial surplus, which sponsors can use to sidestep contributions they would have had to make to a less well-funded plan. This example illustrates exactly why excess funding is so valuable: Using it to pay for required contributions is a high value method for monetizing an existing surplus. However, to give a more evenhanded comparison, we also calculate a defined benefit net cost: the sum of contributions plus any deficit/(surplus) needed to maintain the original level of overfunding.²

In this case, we find an average cost of USD 55 million over 10 years—still well below the USD 200 million defined contribution sticker price. We also observe a 75% probability that DC costs will outpace those of DB plans. Since these future costs are undiscounted, we are not giving the DB plan an added advantage for generating back-loaded contributions, in contrast to the level of DC contributions.

Unsurprisingly, the range of potential outcomes for the DB plan in this example is directly tied to the investment strategy and the level of funding. For a strategy like the one described above, which begins with a modest surplus and uses a stabilization strategy to outperform liabilities with low risk, we expect the cost of the DB approach to be less than that of a comparable DC plan. To the extent a plan is less well funded or adopts a riskier asset allocation, the distribution of outcomes could be meaningfully different.

Mistaking risk measures for strategic mandates

Goodhart's law, named after Charles Goodhart, the British economist credited with its core idea, states that "when a measure becomes a target, it ceases to be a good measure." Yet this is precisely what has happened to the most common metric of a pension plan's impact on its sponsor. The ratio of the projected benefit obligation to the market capitalization of the sponsor is often cited as a key factor in assessing if a pension plan is "too risky" to maintain.

² A negative defined benefit net cost means that the increase in surplus over 10 years was greater than the total contributions paid into the plan.

Looking beyond obvious metrics to understand how pension plans impact sponsors

Exhibit 9: Which DB plan should be a greater concern to investors?

	Company A	Company B
Market cap (\$mn)	20,000	20,000
PBO (\$mn)	2,000	5,000
PBO/market cap (%)	10.0%	25.0%
Pension assets (\$mn)	1,400	5,000
Funded status (%)	70%	100%
Deficit/market cap (%)	3.0%	0.0%
INVESTMENT STRATEGY	TOTAL RETURN	STABILIZATION
Surplus volatility (%)	15%	3%
Surplus VaR95 (\$mn)	493	247
Surplus VaR95/market cap (%)	25%	5%

Source: J.P. Morgan Asset Management.

The comparison in **Exhibit 9** shows how looking at PBO/market cap alone can be misleading and an unreliable indicator of the need for changes to pension provision. The example also illustrates two additional metrics, deficit/market cap and surplus value-at-risk (VaR)95/market cap,³ which provide a more comprehensive view of the pension plan's impact on its sponsor.

The opportunity costs of a pension risk transfer may exceed the benefits

For many sponsors, the decision to either maintain or to terminate a pension plan is a function of the cost of a pension risk transfer (PRT), which is usually expressed as a percentage of the carrying cost of the pension liability on the financial statements.

Although PRT pricing has become more transparent over time as the market has grown and matured, price quotes often fail to capture the full spectrum of expenses associated with a transaction. Further, the quoted prices never incorporate the opportunity costs associated with giving up pension assets that can generate investment returns. To make a truly fair comparison of the two options, a sponsor must consider all of the costs—and benefits—of keeping or terminating a plan.

³ Surplus VaR95 (\$mm) is defined as the 1-in-20 downside change to pension surplus over a one-year period.

Initially, plan sponsors engaged in PRT activity to simply reduce the size of their DB pension footprints. The goal was a reduction in the ratio of the liability to the sponsor market cap, which we have noted is a flawed measure of pension risk. More recently, sponsors increasingly view PRT through the lens of cost optimization, focusing in particular on the insurance premiums paid to the Pension Benefit Guaranty Corporation (PBGC).

While future premium costs can be eliminated by executing a PRT, the decision analysis should also incorporate the opportunity cost of the asset returns that will never be earned as a consequence of that transaction. After all, these are the same assets that will be used to outperform liabilities once they are moved to the balance sheet of the insurance company. In fact, most comparisons of maintaining vs. transferring treat assets simply as a cost center whose sole purpose is to manufacture management fees. This treatment can lead to suboptimal risk transfer decisions; in fact, these assets have a high potential for generating returns in excess of liability growth.

The analysis of PRT transactions is complex, but our framework results in a relatively straightforward set of conclusions:

- The opportunity cost of executing a PRT involves the loss of investment earnings potential on the corresponding assets transferred. We can quantify this opportunity cost by estimating the level of investment returns required to outperform the PBGC and the administrative cost savings that would leave the plan better off avoiding a PRT.
- When a plan's deficit exceeds the variable rate premium cap (USD 598 per participant for 2022), the cost savings from avoiding PBGC premiums are highest for small balance participants. The sponsor achieves the maximal premium reduction per participant while forfeiting a minimal amount of plan assets and related investment earnings potential.
- When a plan is well funded and the variable rate premium, assessed on the plan deficit, is correspondingly small, the potential PBGC premium savings are very low for both small and high balance participants. Even a PRT executed at par, or 100% of PBO, could be outperformed if the related assets were used to generate surplus returns of just 25bps per year.

- These principles raise questions about the typical industry practice of waiting until full funding is achieved, and premium savings minimized, to engage in a PRT.
- There is little reason to believe that insurance companies can invest the assets more efficiently than a pension plan using a stabilization framework; it's more likely that their various capital and accounting constraints will lead to uneconomic investment decisions. Insurance portfolios appear more effective only in comparison to inefficient "hibernated" pension strategies.

In sum, the case for executing pension risk transfers is relatively narrow. Paying an insurance company to take over small balance liabilities with high relative premium costs is quite sensible. Beyond that, the economic benefits of a PRT transaction fade rapidly. Well-funded plans should carefully consider what value, if any, can be achieved by paying an insurance company to take over pension liabilities. (For a detailed primer on the relationship between PBGC premiums and PRT pricing, see the **Appendix**.)

Keep the plan, capture the surplus

There is a common refrain that the existence of the 50% excise tax charged by the Internal Revenue Service (IRS) on pension reversions constitutes some sort of proof that plan sponsors cannot capture value from a surplus. Not only is this narrative false, but its persistence offers glaring evidence of the industry-wide blind spot that has developed with respect to the benefits of DB plans.

As a baseline, the presence of a pension plan surplus will generally produce ongoing accounting income and an asset on the balance sheet while offering a capital cushion against unexpected volatility in funded status. Therefore, doing nothing with a surplus is a perfectly rational financial choice, absent other options, but they do exist. Surpluses can be used to finance new liabilities, serve as a currency in mergers and acquisitions, or pay for retiree medical costs.

We've previously written about the many uses of a pension surplus, dispelling, we hope, the misconception that it lacks value.⁴ Additional uses will doubtless emerge as the regulatory and legal environment evolves to address the needs of sponsors with overfunded plans.

Here, however, we seek to put to rest the notion of surplus having zero value by demonstrating that the minimum value—based on modeling the least appealing scenarios—remains quite positive. Sponsors can capture meaningful value from plan surpluses even using the worst assumptions; under the best, the value of the surplus can be fully realized.

For many sponsors, the most efficient use of a surplus is to finance new benefits rather than funding them with corporate cash flow. With a large enough surplus and an appropriate investment strategy, an overfunded plan can effectively subsidize the retirement benefit costs of the workforce. This is not an accounting gimmick; this is real cash savings to the sponsor for benefits that would otherwise be paid from operating cash flow.

In contrast, the least valuable application of a pension surplus is generally a taxable reversion to the sponsor. Even in this worst-case scenario, however, some value would return to the sponsor after the payment of the excise tax. But how much? **Exhibit 10** analyzes the distribution of surplus among an employer, an employee and the IRS across different reversion scenarios.

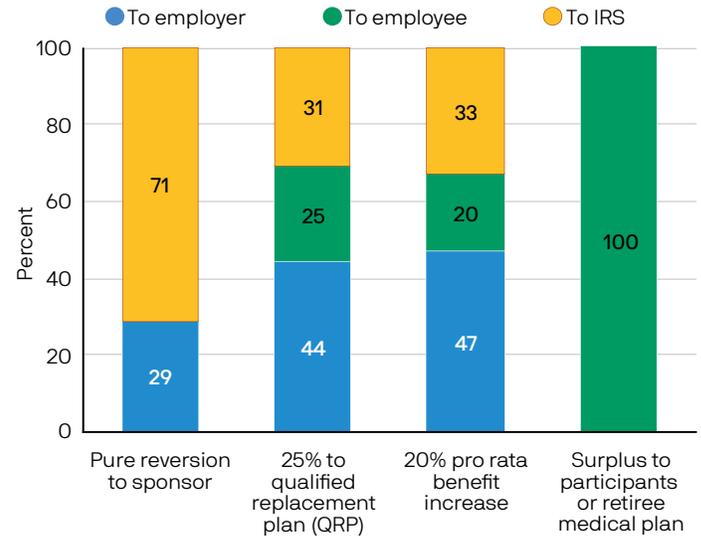
In a pure reversion of the entire surplus to the sponsor, the employer receives 29 cents on the dollar. However, if the sponsor allocates at least 20% of the reversion to provide pro rata benefit increases or establishes a qualified replacement plan (QRP) with at least 25% of the surplus, the excise tax is reduced, and the employer receives 44 to 47 cents on the dollar. Adding benefits for employees would take this figure considerably higher.

While capturing 45 cents on the dollar is hardly ideal, it is a long way from being unproductive. The origin of the surplus can also matter. If it derives from recent contributions, the return of 45 cents might be considered inadequate, but if the surplus arises from asset outperformance vs. liabilities, it may feel like found money. These examples are just the low end of the

⁴ Gross and Buchenholz, October 2021 and March 2022.

In practice, minimum value of surplus is 40–50 cents on the dollar

Exhibit 10: Distribution of surplus in reversion



Source: Internal Revenue Service, J.P. Morgan Asset Management; data as of December 31, 2021. Calculations assume a corporate tax rate of 21%.

spectrum; sponsors have a variety of other mechanisms available to capture a greater portion of the surplus value should they wish to do so.

Financial statement benefits

Evidence suggests that the broad improvement in DB plans may represent an inflection point in the market's attitude towards them. It also reflects the financial reality that maintaining a well-funded plan can enhance the sponsor's balance sheet and income statement (**Exhibit 11**).

While we believe cash contributions indicate the ultimate cost of a plan, the DB approach does have numerous financial impacts across the income statement and balance sheet. A plan in surplus can reduce corporate leverage measures by supplying a net asset to the balance sheet. On the income statement, overfunded plans generally can be expected to generate pension income, boosting corporate earnings and—when paired with a low risk investment strategy—doing so with very little earnings volatility. Likewise, with a low surplus risk investment strategy, the corporate cash flow can be expected to remain unencumbered from pension needs.

An overfunded DB plan has financial statement benefits

Exhibit 11: Retirement plan impacts on U.S. GAAP basis

	Underfunded DB plan	Overfunded DB plan	DC plan
Balance sheet	<ul style="list-style-type: none"> ● A net liability, increasing firm leverage, reducing balance sheet capacity ● Generally treated as long-term debt by financial statement users 	<ul style="list-style-type: none"> ● A net asset, reducing firm leverage, increasing balance sheet capacity ● Surplus may or may not be treated as an asset by financial statement users 	<ul style="list-style-type: none"> ● None
Income statement	<ul style="list-style-type: none"> ● Poorly funded plans will generate consistent pension expense, diluting corporate earnings ● Moderately underfunded plans may generate slightly positive pension income ● Gains/(losses) are smoothed into earnings 	<ul style="list-style-type: none"> ● Overfunded plans will generate consistent pension income, boosting corporate earnings ● Gains/(losses) are smoothed into earnings 	<ul style="list-style-type: none"> ● Contributions dilute corporate earnings ● No amortization of contribution costs
Cash flow statement	<ul style="list-style-type: none"> ● Contributions classified as operating cash outflow 	<ul style="list-style-type: none"> ● None 	<ul style="list-style-type: none"> ● Contributions classified as operating cash outflow

Source: J.P. Morgan Asset Management.

Retirement savings come under renewed pressure

Industry practitioners often see U.S. retirement savings as a three-legged stool: Social Security entitlements, personal savings and employer-sponsored retirement plans (Exhibit 12). Weakness in any single leg undermines the stability of the whole. We will briefly consider all three legs of the current system before reaching the conclusion (spoiler alert) that the challenges facing each are real.

By one credible estimate, since the GFC half of American households have insufficient retirement assets to match their current standard of living.⁵ For plan sponsors, however, a silver lining is visible: Their workforce may come to value the private retirement system more highly over time.

The decision to maintain a defined benefit pension is not made relative to a zero baseline. Retirement benefits, particularly at large corporations, will be paid to the workforce in some form. We've already made specific cost comparisons between DB and DC plans earlier in this paper; here, we observe that—along with the potentially cheaper cost structure—the presence of a DB plan will almost certainly increase the probability of

⁵ The National Retirement Risk Index (NRRI), which is tracked by Boston College's Center for Retirement Research, measures the percentage of working-age households at risk of being unable to maintain their standard of living in retirement. Current data suggest that this measure has hovered around 50% since the GFC.

Americans' retirement savings are under pressure

Exhibit 12: Challenges facing the three pillars of the U.S. retirement system

Pillar 1: Social Security	<ul style="list-style-type: none"> ● Social Security represents one-third of income for those over 65; excluding wages, it accounts for over 40% of income ● The OASI Trust* is expected to deplete by 2034, potentially leading to reduced or delayed benefits ● Nearly 50% of millennials don't believe they'll "see a dime" from Social Security
Pillar 2: Employer-sponsored retirement plans	<ul style="list-style-type: none"> ● Shift from DB to DC has placed a higher burden on employees and led to lower levels of income replacement ● DC plans are often more costly to employers than comparable well-run DB plans ● Maintaining a DB plan has both economic and social benefits to employees and employers
Pillar 3: Individual savings	<ul style="list-style-type: none"> ● The personal savings rate in the United States has been on the decline over the last 50 years ● After a spike during COVID-19, the rate has declined to around 5%, a level consistent with income replacement of ~10%–30%

Source: J.P. Morgan Asset Management, U.S. Bureau of Economic Analysis—Personal Savings Rate, U.S. Census Bureau 2021 Current Population Survey, the Nationwide Retirement Institute's 2022 Social Security Survey, 2022 Supplemental Security Income annual report.

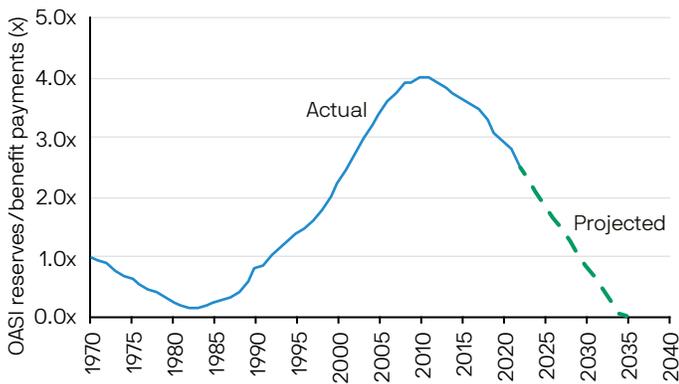
*The Old-Age and Survivors Insurance (OASI) Trust Fund is a separate account in the U.S. Treasury that pays benefits to retirees and other beneficiaries.

employees achieving their retirement goals. A DB plan may also have a valuable signaling effect for investors who care about the social impact of retirement benefits.

The state of Social Security may make households vulnerable, too. Current projections forecast the trust fund’s depletion by 2034⁶ (Exhibit 13). Although Congress and any future administration would likely seek to restore the system to financial health, no guarantees exist. Consequently, some uncertainty surrounds the benefits that will be available to participants in the future.⁷

Social Security projections forecast depletion by 2034

Exhibit 13: Social Security OASI program—reserves-to-cost ratio



Source: Supplemental Security Income annual reports.

Private savings are insufficient

We cannot begin to solve the public policy dilemma of Social Security here. But the limitations of the current system, and the uncertainty clouding its future, mean that workers are starting to place greater value on the private retirement system. In a future where the promise and certainty of Social Security benefits are diminished, the additional security that private DB plans offer may increase in value to workers over time.

For individuals, using private savings to purchase annuities directly is unlikely to offer a viable substitute for Social Security benefits. Realistically, private savings

⁶ The Social Security trust fund represents the accumulated surplus of contributions (from employers and employees) in excess of benefits paid out, which is invested in special-issue Treasury securities. When the surplus is exhausted, the system will effectively operate on a pay-as-you-go basis unless changes are made.

⁷ Congressional Research Service, “Social Security: What Would Happen If the Trust Funds Ran Out?” Updated September 28, 2022.

are inadequate and private annuities are costly. Despite a massive surge during the pandemic, the U.S. personal savings rate appears to be returning to its long-term 50-year downward trajectory and currently stands at 3.1%.⁸

To understand what this might imply for retirement security, we ran a sensitivity analysis measuring the income replacement power of a (slightly more optimistic) 5% savings rate by varying the earnings on savings and the annuitization discount rate at retirement. Under a reasonable set of assumptions, we found that a 5% savings rate is consistent with a final salary income replacement of just 10%–30% at age 65 (Exhibit 14).

Limited private savings will inevitably translate into suboptimal retirement income

Exhibit 14: Potential income replacement at 5% savings rate and various levels of earning and annuity rates (age 65)

		Annuity rate			
		3%	4%	5%	6%
Earnings on savings	0%	8%	9%	10%	11%
	1%	10%	11%	12%	13%
	2%	12%	13%	14%	16%
	3%	15%	16%	18%	19%
	4%	18%	20%	22%	24%
	5%	23%	26%	28%	31%
	6%	30%	33%	36%	40%
	7%	39%	43%	47%	51%

Source: J.P. Morgan Asset Management. Table assumes a 45-year working lifetime.

Plan sponsors do not need to choose between DB and DC

The last leg of the stool, employer-sponsored retirement programs, will need to pick up the slack that Social Security and private savings cannot. The present state of the private retirement system emphasizes defined contribution over defined benefit plans, largely because DB plan sponsors have grown frustrated with the funding volatility and contribution costs they have experienced.

⁸ According to the most recent September 2022 reading by the U.S. Bureau of Economic Analysis.

Although a shift to a DC program clarifies and stabilizes the cost structure of pension provision for sponsors, it often does not provide a level of retirement security equivalent to that of a traditional DB plan. Additionally, while some participants greatly value the flexibility that DC plans offer, many participants do not have sufficient assets or investment knowledge to make use of that flexibility.

For this reason, the broad trend in DC plan design has been to simplify participants' choices during their working lives and focus on converting capital to income efficiently at retirement. Plan designers are essentially shaping DC retirement offerings to behave as much like DB plans as possible. But for those sponsors that already have DB plans, the better option for all may be to retain an annuity-offering DB plan and a flexible DC structure side by side. Despite the increasing alignment of DB and DC objectives, the different plan structures vary in their capacity to satisfy key goals; providing only one or the other can be a limitation (**Exhibit 15**).

Do employees value DB plans?

One of the most common criticisms of DB plans is that younger workers simply don't want them. Surveys find that most workers under 30 expect to change

employers, but those who are unsatisfied with their retirement benefits are even less likely to stay.⁹ The same survey finds that while 86% of younger workers mark retirement savings portability as a top priority, 85% also prioritize getting a fixed, lifetime monthly benefit at retirement. Employees do want portability—but they also value the stability of a life annuity.

DB plan design has evolved significantly over the past two decades, adding levers to meet the needs of today's workforce. Many DB plan designs have also migrated away from back-loaded final average pay and moved into cash balance plans where the benefit is tracked as an account value. This benefit has comparable portability to a DC plan because the account can be taken in the form of a lump sum at—or any time subsequent to—employment termination and rolled into an individual retirement account (IRA). Alternatively, the participant can choose to keep the account with their employer, accruing interest in accordance with the plan's benefit formula.

⁹ Pew Charitable Trusts, "Retirement Needs and Preferences of Younger Public Workers," May 2017.

Comparing defined benefit and defined contribution plans by their key objectives—for sponsors and participants

Exhibit 15: How do DB and DC plans deliver on key objectives?

	DB plan	Plan feature	DC plan
Participant working life/ accumulation phase	Mandatory	Participation	Optional
	Longer	Vesting	Shorter
	Sponsor	Investments	Participant
	Formulaic	Accumulation	Variable
	Limited	Portability	Good
Participant retirement/ decumulation phase	Life Annuity	Retirement Income	Spending Plan
	Low	Longevity Risk	High
	High	Mortality Risk	Low
	High	Inflation Risk	Moderate
Sponsor considerations	Lower	Sponsor Cost	Higher
	Higher	Contribution Flexibility	Lower
	Higher	Workforce Management	Lower
	Higher	Financial Risk	Lower
	Lower	Litigation Risk	Higher

Source: J.P. Asset Management.

More recently, variable annuity pension plans (VAPPs) have also become popular, particularly with smaller employers. These plans implement a form of risk-sharing in which benefits can adjust in reaction to market returns. Portability should not be an insurmountable hurdle; there is no reason a DB plan can't offer a one-year vesting period in order to better align with DC plans.

While modern DB plan designs can offer the portability and retirement stability that employees claim they want, the burden is still on employers to educate their plan participants and effectively convey the value of these programs. Fortunately, the quality of plan communications has improved as much as investment strategy, making this an entirely achievable goal.

Stronger retirement benefits can attract, motivate and retain employees

Enhancing the value of retirement benefits may solve other challenges, as well. Much has been written about the Great Resignation, which began in 2021 as a wave of employees across industries voluntarily quit their jobs. Natural economic forces (wages, unemployment) may reverse this trend over time, but the challenge of maintaining a motivated labor force is very real.

Interestingly, this shift has been more of a private sector phenomenon. Surveys indicate that inadequate benefit packages were a reason for more than 40% of all private sector employees who left their jobs in 2021.¹⁰ For younger workers, the possibility of accessing a traditional (or cash balance) DB plan has become remote. And for older workers whose plans are frozen, the prospect of adding to their pension benefits has been closed off, potentially decreasing employee loyalty. (Conversely, state and local public employers experienced a reduced impact from resignations, in part due to broad pension benefits, with more than 85% offered access to a DB plan.¹¹)

¹⁰ Pew Research Center, survey of U.S. adults, conducted on February 7–13, 2022.

¹¹ MissionSquare Retirement, "Public Sector Benefits Can Offer a Hiring and Retention Advantage During the Great Resignation," February 1, 2022.

Private sector employers are not standing idly by but are responding by increasing and improving benefits. In keeping with the broader trend toward defined contribution plans, however, they are doing so through 401(k) match enhancements (**Exhibit 16**). Perhaps some of these sponsors should consider reopening closed or frozen DB plans instead?

Large employers have enhanced retirement packages to attract and retain staff

Exhibit 16: Select list of recent 401(k) match enhancements (in USD)

Company	401(k) enhancement
KPMG	<ul style="list-style-type: none"> ● Before: Match 25% of first 5% of base pay up to a maximum match of 1.25% ● After: Automatic contribution of 6%–8% of total eligible earnings, regardless of employee contribution
Boeing (non-union)	<ul style="list-style-type: none"> ● Before: 75 cents on the dollar up to 8% of base pay employee contributions ● After: Match dollar-for-dollar first 10% of base and incentive pay
Boeing (Machinists Union)	<ul style="list-style-type: none"> ● Original rejected offer: Increase match from 75% of first 8% contributed to 100% of first 10% contributed ● Accepted offer: One-time \$8,000 lump sum, 100% of which can be deferred to 401(k) plan
Tesla	<ul style="list-style-type: none"> ● Before: None ● After: Match 50% of employee contribution up to 6% of eligible compensation
Meta	<ul style="list-style-type: none"> ● Before: 50% up to 7% of pay ● After: 100% up to \$10,250 (\$13,500 if 50 or older)

Source: Pensions & Investments, company financial statements, J.P. Morgan Asset Management.

These benefit increases are, of course, good news for employees. And some of the firms offering enhanced DC plan benefits have never provided a traditional pension. Should this fact dissuade companies from considering the benefits of opening a new DB plan? Perhaps. But for the many sponsors that currently maintain a closed or frozen plan, such arguments do not apply. Closed and frozen DB plans—many of which are fully funded or overfunded—represent a compelling opportunity to offer employees a benefit that they genuinely value, at low cost.

Signaling effects: Capturing the ‘S’ in ESG

Over the past decade, asset owners and asset managers have made wider use of environmental, social and governance (ESG) metrics in their investment decision-making processes. Although precise definitions of these criteria remain ambiguous (and their adoption by specific investors inconsistent), the broader existence of ESG-aware investing creates an incentive for companies to demonstrate their compliance with key standards.

Interestingly, a company’s decision to offer employees a DB plan appears to enhance its social (S) score relative to those that do not. At a high level, this connection is unsurprising: Few would argue with the premise that providing employees with secure retirement benefits is a social good. To the best of our knowledge, ESG score providers don’t explicitly measure employee retirement programs. However, a notable correlation appears to exist between maintaining such a plan and receiving a higher social score.

Exhibit 17 shows that S&P 1000 companies with accruing pension plans have the highest MSCI Social Pillar scores, followed by those with closed or frozen plans. Companies without a defined benefit pension plan have a below-average social score. This finding holds not only in aggregate but also across the majority of underlying sectors.

Open pension plans correlate with higher social scores

Exhibit 17: MSCI Social Pillar scores—S&P 1000 companies

	Accruing	Closed/ frozen	No DB plan	All companies
All S&P 1000	4.7	4.4	4.2	4.3
Consumer discretionary	4.4	4.6	4.3	4.4
Consumer staples	4.5	4.3	4.1	4.2
Energy	5.8	5.3	5.3	5.3
Financials	3.6	3.5	3.3	3.4
Health Care	5.1	5	4.5	4.6
Industrials	5.7	4.9	5.3	5.2
Information technology	4.4	4.6	4.2	4.2
Materials	3.9	3.9	3.6	3.8
Utilities	5.1	6.1	4.5	5.3

Source: MSCI, S&P, annual 10-K filings, J.P. Morgan Asset Management; data as of August 2022. Accruing plans are those with a service cost/pension liability of 1.0% or more. All other companies with nonzero pension liabilities are considered closed/frozen. Those companies with no pension liability are considered to have no defined benefit pension plan. Sectors with one or zero accruing plans are excluded from the table. The MSCI Social Pillar score is on a scale from 0 to 10, with 10 being the highest rating.

Conclusion: Is it time to reopen DB pension plans?

We’ve laid out our case by filling in missing information and considerations that may have been obscured by the pension industry’s collective blind spot. But ultimately, each sponsor faces unique challenges and needs that will guide its employee retirement savings strategy. When we step back and look at the full picture beyond pension management orthodoxy, we find that defined benefit plans can provide economic, strategic and social benefits to both employers and plan participants. With the pension universe back at full funding, we think defined benefit deserves a comprehensive and fair assessment before sponsors dash blindly for the exit.

APPENDIX: The economics of pension risk transfer

Without PBGC premiums, PRT transactions make far less sense

PBGC premium costs for 2022 cap out at USD 686 per plan participant when a plan is at (or above) the variable rate premium cap. The cost can be as low as USD 88 per plan participant when there are no unfunded vested benefits and only the flat rate premium is applicable.

Exhibit A plots the cost per participant as a function of the deficit per participant. This framework can be applied when thinking about the cost savings from off-loading participants with varying benefit balances.

In the exhibit, the annual cost savings are consistent with the total premium per participant: USD 686 at deficit levels “above the cap” and declining to USD 88 at full funding and surplus. In the case of an extremely low balance, participants (and their associated premium costs) could be removed without a corresponding reduction in plan assets or liabilities. This is the ideal

situation, and, assuming a plan can do this at no cost, the transaction return on investment would be considerable, with much higher returns for higher initial per-participant costs.

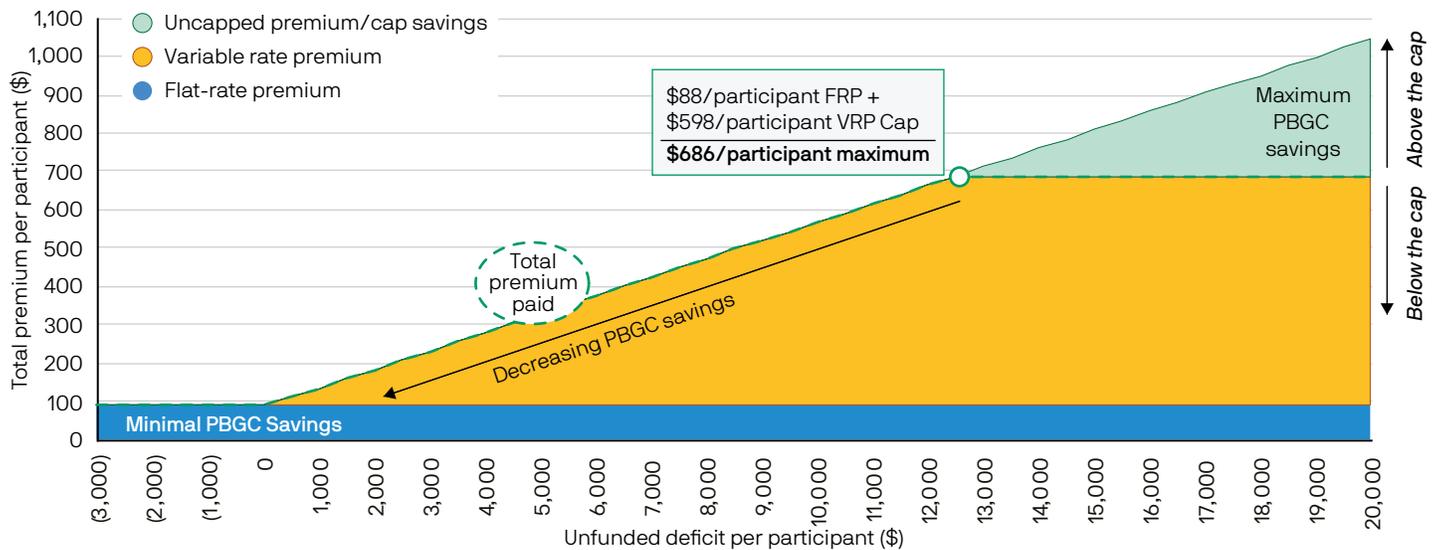
But what happens when we depart from these ideal conditions?

Incorporating more realistic plan circumstances, the return on investment (for all but a few transaction types) falls short of the expected return on a typical stabilized portfolio. **Exhibit B** illustrates the PRT opportunity costs for a range of transactions with varying features: above or below the variable rate cap, average or low participant balance levels and a 5% (or par) buyout premium.

The opportunity cost measures the break-even level of surplus returns over 10 years that would leave a plan with the same level of surplus—whether it engaged in the PRT or held on to the assets and liabilities. This measure provides an objective gauge that sponsors

PBGC premium savings are maximized “above the cap”

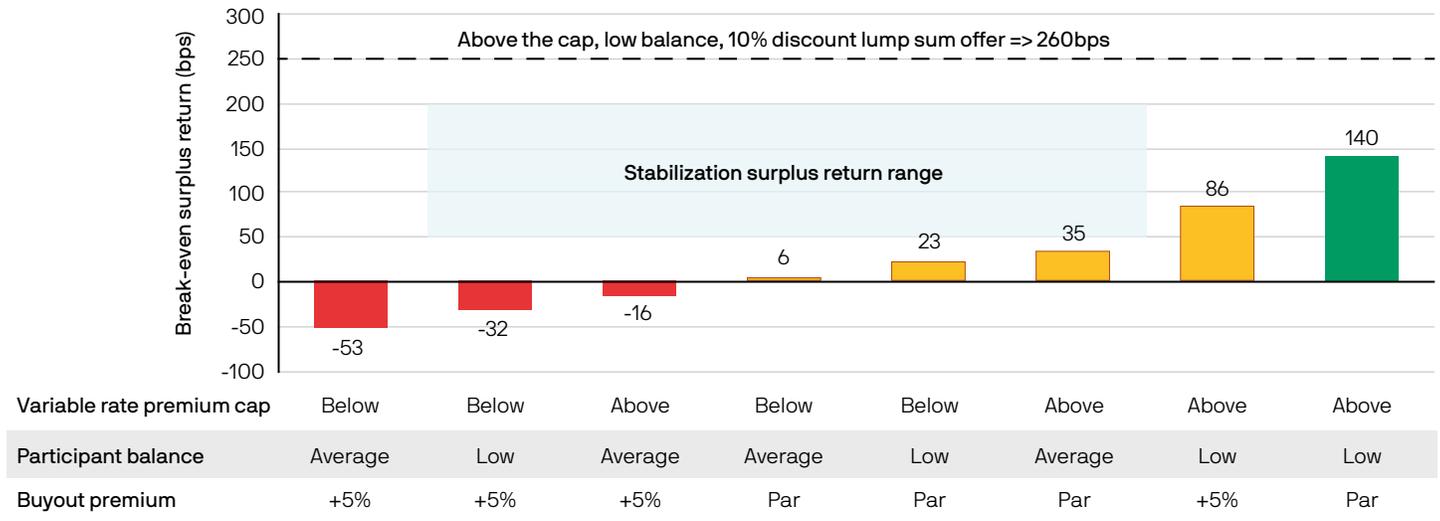
Exhibit A: 2022 PBGC premium vs. deficit per participant



Source: PBGC, J.P. Morgan Asset Management; data as of 2022.

Stabilization has higher surplus returns than most PRT transactions

Exhibit B: Identifying the 10-year opportunity cost of pension risk transfer transactions



Variable rate premium cap: Plans below cap modeled as 100% funded on a PBGC basis, while those above the cap are modeled with \$60,000 unfunded vested benefits per participant.

Participant balance: Each transaction assumes 10% of the liability is transferred. Average participant balance transactions transfer 10% of liability and 10% of participants, while low balance participant transactions transfer 10% of the liability and 40% of the participants.

Buyout premium: Premium relative to the liability paid to the insurance company. Par indicates no premium, while +5% indicates a 105% premium to liability.

Source: J.P. Morgan Asset Management; data as of October 31, 2022.

can use to assess the attractiveness of a risk transfer activity. Anything meaningfully below the return range of a stabilized portfolio should be considered noneconomic and a destruction of value.

Examining the break-even opportunity costs, we find that the only buyout transactions within the return range of a stabilization portfolio are those plans “above the cap” that are off-loading low balance participants. These are attractive even when paying a 5% buyout premium to the book value of liabilities. Pension risk transfers transacted “below the cap,” involving a 5% buyout premium, have negative opportunity costs. Even if a

plan’s investment returns just matched liability growth, it would be better off avoiding the deal.

Today, most plans are overfunded and thus necessarily in “below the cap” territory. Yet they continue to engage in PRT, which a modest risk stabilization investment portfolio could outperform. Once again, we emphasize the value to sponsors of maintaining an open and accruing defined benefit plan. At the very least, we hope sponsors will weigh their investment teams’ ability to generate liability outperformance when considering the true costs of these transactions.

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