
How and Why Pension Funds Use Derivatives

EXECUTIVE SUMMARY

With over \$58 trillion in assets globally, pension fund managers are major participants in financial markets and play a vital role in helping to provide post-retirement incomes for plan employees¹. Meeting such an important goal requires careful consideration of investment goals and risks, and alignment of assets and liabilities within strict fiduciary and regulatory standards.

To address these challenges, pension fund managers have steadily expanded their use of derivatives over the past several decades, using interest rate swaps (IRS), currency forwards, inflation swaps and other instruments to:

- Manage risks from changes in interest rates, inflation, currency, longevity (for defined benefit plans)², credit and equity prices;
- Enhance portfolio returns through capital-efficient structures that generate incremental yield and secure cost-effective market exposure;
- Access markets or asset classes that are otherwise difficult to reach because of transaction costs, liquidity or other barriers; and
- Support dynamic asset allocation within liability-driven investment (LDI) strategies.

While there are significant benefits to using derivatives, there are legal, operational, regulatory and risk management issues that need to be considered and addressed. For example, derivatives are subject to multiple regulatory requirements across jurisdictions that fall into five broad categories: parameters for usage, clearing, margining, reporting and trading.

While designed to strengthen market integrity and transparency, these rules can pose specific challenges for pension funds given their long-dated liabilities, portfolio structures and liquidity needs. ISDA works with pension funds to navigate legal, operational and liquidity challenges, with the aim of advancing safe and efficient derivatives markets tailored to long-term investors.

This paper examines how and why pension funds use derivatives, drawing on examples. It also reviews the global regulatory landscape that shapes derivatives use and highlights the role ISDA plays in helping pension funds navigate these markets.

¹Pension Market in Focus 2025 Preliminary 2024 Data, www.oecd.org/content/dam/oecd/en/topics/policy-sub-issues/asset-backed-pensions/PMF%202025%20-%20Preliminary%202024.pdf; Global Pension Assets Climb to Record \$58.5 trillion, www.wtwco.com/en-ca/news/2025/02/global-pension-assets-climb-to-record-dollar-58-point-5-trillion

²Defined benefit (DB) pensions are legal entities that collect, pool and invest contributions to guarantee retirement benefits. As plan sponsors, these pension funds – not the asset managers they sometimes hire – bear the fiduciary duty to secure income streams. DB plans account for about 40% of total global pension assets

MANAGING INTEREST RATE, INFLATION, CURRENCY, LONGEVITY, CREDIT AND EQUITY RISK

Pension funds operate in a world where interest rates, inflation, credit conditions, equity markets and currency values can all shift suddenly – each with the power to reshape their funding health. To stay solvent and stable in this volatile environment, pension plans deploy derivatives strategies intended to hedge these risks while preserving capital for growth.

Interest Rate Risk

Interest rate movements are among the most significant drivers of pension funding volatility. Even small declines in yields can sharply increase the present value of future liabilities. To reduce this sensitivity, pension funds can use IRS to extend portfolio duration without locking up capital in illiquid, long-dated bonds.

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Large public plans commonly hold material IRS positions, although typically below full hedging levels³. A Commodity Futures Trading Commission (CFTC) survey of 153 US public pension plans found that 43 (28.1%) use IRS to manage duration risk. Without such hedges, a 1% decline in rates could generate over \$800 billion in sector-wide losses⁴.

Dutch pension fund Stichting Pensioenfonds (PGB) employs euro IRS as a core component of its interest rate hedging strategy⁵. The fund manages the risk that falling interest rates increase the present value of its pension liabilities and anchors its hedge ratio to the 20-year euro swap rate. In 2024, PGB's interest rate hedges covered 70.2% of the interest rate risk within its pension commitments and contributed positively to the performance of its matching portfolio.

The Government Pension Fund of Norway (GPFG)⁶ reported over NOK 2.8 trillion (\$276 billion) notional in interest rate derivatives (IRD) holdings in 2024 – a material increase from NOK 464.5 billion in 2023. GPFG's IRD holdings consist mostly of IRS that it uses to adjust duration exposure⁷.

According to The Pensions Regulator and the Bank of England, it is typical for pension funds wanting to extend duration to use IRS to receive a fixed interest rate and pay a floating rate⁸. When a pension fund is a fixed-rate receiver, it extends portfolio duration to better align long-dated assets with liabilities. Additionally, it reduces its sensitivity to falling discount rates, while preserving balance sheet flexibility for other investments. This supports its real-return objectives without having to transact large volumes of government bonds.

³ Public Pension Duration Risk, Interest Rate Swap Usage, and Transparency, www.cftc.gov/sites/default/files/Pension_IRS_10232023_ada.pdf

⁴ ISDA, The Value of OTC Derivatives: Empowering Organizations to Manage Risks, Enhance Returns and Optimize Liquidity, www.isda.org/2025/03/17/the-value-of-otc-derivatives-empowering-organizations-to-manage-risks-enhance-returns-and-optimize-liquidity/

⁵ PGB Annual Report 2024, www.pensioenfondspgb.nl\globalassets\pdfs\jaarverslagen\pensioenfonds-pgb_annual-report-2024.pdf

⁶ Despite its name, Norway's Government Pension Fund Global is a sovereign wealth fund: it channels petroleum revenues into a long-term financial reserve to benefit current and future generations, with withdrawals governed by a fiscal spending rule, and it is not earmarked to pay pensions. Its mandate confers a distinctly long investment horizon, which is analogous to many pension investors' long-term goals

⁷ Norges Investment Bank 2024 Annual Report, www.nbim.no/en/news-and-insights/reports/2024/annual-report-2024/

⁸ The Pensions Regulator Asset Breakdown, <https://helpfiles.thepensionsregulator.gov.uk/members/dbassetbreakdowndetails>, What Caused the LDI Crisis? <https://bankunderground.co.uk/2024/07/26/what-caused-the-ldi-crisis/>

Inflation Risk

Persistent or unexpected inflation erodes the real value of pensions and adds volatility when pension benefits are indexed. Pension funds hedge this exposure by exchanging fixed cashflows for inflation-linked cashflows via swaps, often alongside inflation-linked bonds, to better align assets with indexed liabilities.

Pension Insurance Corporation (PIC) reported holdings of £2.9 billion (\$3.8 billion) in inflation swaps in 2024. These instruments are used to improve the alignment between asset and liability cashflows and to ensure that “risk driver sensitivities are aligned across the maturity spectrum”. PIC’s inflation swaps are linked to the observable Retail Prices Index (RPI) benchmark, but it also incorporates Limited Price Indexation and the Consumer Prices Index (CPI) into its modeling assumptions to analyze how potential shifts in these indices could impact inflation risk⁹.

The Universities Superannuation Scheme (USS), the UK’s largest pension fund, disclosed holdings of £4.3 billion notional in RPI swaps, £165 million in CPI swaps and £205 million in swaps linked to the Harmonized Index of Consumer Prices at Constant Tax Rates in 2024¹⁰. These exposures directly hedge benefit indexation, supplementing limited inflation-linked bond availability and reducing volatility from inflation shocks.

The Bank of England Staff Pension Fund reported £586.4 million notional in intermediate-dated inflation swaps (four to 14-year maturities). These positions improve the predictability of real cash outflows and avoid the need to lock up capital in index-linked gilts and support what the fund describes as a “high level of hedging across the maturity spectrum”¹¹.

These examples show how pensions use maturity-laddered inflation swaps to neutralize liability indexation, supplement scarce inflation-linked bond supply and stabilize funded status, while preserving liquidity and balance-sheet flexibility.

Currency Risk

Global allocations expose pensions to exchange rate swings, which impact funding ratios and cashflows. Funds typically use FX forwards and, where appropriate, cross-currency swaps to align non-domestic asset exposures with domestic liability-currency needs – stabilizing outcomes without forcing sales of underlying assets.

For example, the National Pension Service (NPS) of South Korea, which manages KRW 890.5 trillion (\$611 billion) in assets, established a \$10 billion currency swap with the Bank of Korea in 2022¹². This swap was extended and expanded to \$50 billion in 2024¹³ and provides stable access to foreign currency for NPS’s global investments, with longer maturities and lower transaction risks and costs compared to alternatives.

⁹ Pension Insurance Corporation Plc Annual Report and Accounts 2024, www.pensioncorporation.com/content/dam/pic/corporate/documents/investors/pic-and-picg-financial-results-and-reports/results/2024/PIC-Company-2024-Annual-Report-and-Accounts.pdf.downloadasset.pdf

¹⁰ Universities Superannuation Scheme, www.uss.co.uk/-/media/project/ussmainsite/files/about-us/report-and-accounts/uss-report-and-accounts-2024.pdf?hash=9AE81E04874DE7EEDB5BF5ACD675112A&rev=10a2041a444a4262b16d3f6004858dd5

¹¹ Bank of England Pension Fund Report and Financial Statements, www.bankofengland.co.uk/-/media/boe/files/about/human-resources/pensionreport.pdf

¹² ISDA, The Value of OTC Derivatives: Empowering Organizations to Manage Risks, Enhance Returns and Optimize Liquidity, www.isda.org/2025/03/17/the-value-of-otc-derivatives-empowering-organizations-to-manage-risks-enhance-returns-and-optimize-liquidity/

¹³ FX Authorities, NPS Agree to Extend \$65 bil. Currency Swap Deal, www.koreatimes.co.kr/economy/policy/20251215/fx-authorities-nps-agree-to-extend-65-bil-currency-swap-deal

Although not a pension fund, GPFG used \$89 billion in FX derivatives in 2023, illustrating its operational currency management practices¹⁴. Rather than relying on spot transactions, it obtains foreign currency for withdrawals or collateral through forwards, smoothing cashflows and operational demands across the 70 currencies in which it invests.

Caisse de dépôt et placement du Québec (CDPQ) actively manages currency risk with derivatives. At the end of 2024, CDPQ held C\$30.1 billion (\$21.7 billion) notional in currency swaps and C\$207.9 billion notional in currency forwards¹⁵. Its currency management framework is designed “to optimize the overall portfolio as well as each of the specialized portfolios by seeking the optimal net exposure to currencies and considering the expected return, risk and diversification of each long-term currency”. CDPQ combines strategic and dynamic hedging, adjusting exposures when the Canadian dollar is significantly over- or undervalued relative to developed-country currencies.

Rising life expectancy increases the cost of promised benefits, creating a significant source of funding volatility for defined-benefit schemes. Longevity swaps enable pensions to transfer this risk to insurers or reinsurers, stabilizing cashflow projections and funding ratios without requiring changes to investment strategy

Australian superannuation funds, which held 49% of assets offshore as of June 2024, use FX forwards to manage non-Australian-dollar cashflows, ensuring returns on foreign holdings translate into stable domestic inflows¹⁶.

Effective currency risk management relies on calibrated hedge ratios, disciplined collateral and margin management and clear governance. These frameworks balance cost, liquidity and tracking error against liability-currency stability, ensuring consistent protection of funding outcomes.

Longevity Risk

Rising life expectancy increases the cost of promised benefits, creating a significant source of funding volatility for defined-benefit schemes. Such schemes refer to employer-provided programs in which enrollees are guaranteed a defined benefit post-retirement. Longevity swaps enable pensions to transfer this risk to insurers or reinsurers, stabilizing cashflow projections and funding ratios without requiring changes to investment strategy.

PIC employs longevity swap reinsurance to mitigate the uncertainty associated with future longevity outcomes. Under these arrangements, PIC pays a fixed stream of annuity benefit cashflows (plus fees) to a reinsurer. In return, the reinsurer pays PIC the actual benefits arising from the underlying mortality experience¹⁷. This enables PIC to constrain longevity-driven volatility in its liability cashflows, thereby reducing risk and allowing more stable planning of its asset strategy.

¹⁴ ISDA, The Value of OTC Derivatives: Empowering Organizations to Manage Risks, Enhance Returns and Optimize Liquidity, www.isda.org/2025/03/17/the-value-of-otc-derivatives-empowering-organizations-to-manage-risks-enhance-returns-and-optimize-liquidity/

¹⁵ CDPQ 2024 Annual Report: Investing for Future Generations, www.bibliotheque.assnat.qc.ca/DepotNumerique_v2/AffichageFichier.aspx?id=315464

¹⁶ ISDA, Australian Superannuation Funds Current and Future Uses of Derivatives, www.isda.org/2025/05/20/australian-superannuation-funds-current-and-future-uses-of-derivatives/

¹⁷ Pension Insurance Corporation Group Limited Solvency and Financial Condition Report 2024. www.pensioncorporation.com/content/dam/pic/corporate/documents/investors/-pic-and-picg-financial-results-and-reports/regulatory-returns/2024-PIC-SFCR.pdf.downloadasset.pdf

The BT Pension Scheme (BTPS) executed a £5.0 billion longevity swap with Reinsurance Group of America (RGA) in 2023, covering pensioner liabilities through its captive insurer and reducing exposure to unexpected improvements in life expectancy without affecting BT's cash contributions¹⁸. BTPS subsequently completed two further transactions in March 2025, totaling £10.0 billion – comprising a new £5.0 billion arrangement with Swiss Re and a £5.0 billion increase to its existing cover with RGA – again using its captive structure to intermediate the risk transfer¹⁹.

In December 2024, the Airways Pension Scheme entered a £340 million longevity swap with MetLife, using Zurich Assurance Ltd as intermediary in a pass-through structure²⁰. The transaction transferred longevity risk for approximately 1,100 members, including non-pensioners, ensuring that the scheme receives compensating income if members live longer than expected.

AstraZeneca's pension implemented a longevity swap covering approximately 8,000 pensioners and 65% of the company's total pension obligations, equivalent to \$2.4 billion in pension liabilities²¹. AstraZeneca reports that a one year increase in life expectancy would raise pension obligations by \$214 million, but this could be partially offset by a \$108 million increase in the value of the longevity swap. The swap therefore halved the incremental cost of improved longevity, stabilizing funding requirements.

Credit Risk

Credit spread volatility directly affects both capital efficiency and portfolio risk. Some pension funds use credit derivatives to manage this risk, reducing downside exposure while maintaining access to credit returns and capital efficiency. For example, credit default swaps (CDS) can be used to transfer or replicate credit exposure efficiently without tying up capital in cash bonds.

State Teachers Retirement System of Ohio (STRS) reported \$33.6 million notional in CDS outstanding as of June 2024, noting that it allows the fund to manage credit exposure while limiting sensitivity to interest rates or foreign exchange. The fund describes CDS as a targeted, capital-efficient tool to shape credit beta²².

In Canada, PSP Investments uses derivatives to enhance returns and gain synthetic exposure to credit markets. In 2024, PSP held C\$3.5 billion in purchased CDS and C\$2.0 billion in written (sold) CDS across its consolidated holdings²³. Purchased CDS positions provide protection against credit deterioration in the fund's bond portfolio, while written CDS transactions generate premium income by assuming synthetic credit exposure, equivalent to holding the reference entity's debt.

¹⁸ BT Pension Gets £5bn Longevity Swap from RGA Re Via Captive www.artemis.bm/news/bt-pension-gets-5bn-longevity-swap-from-rga-re-via-captive/

¹⁹ BT Pension Scheme Completes Two Longevity Swap Transactions Totaling £10bn. www.btps.co.uk/NewsDetail?a=97

²⁰ Airways Pension Scheme Successfully Completes Longevity Swap www.mybapension.com/aps/news/read/29/airways-pension-scheme-successfully-completes

²¹ ISDA, The Value of OTC Derivatives: Empowering Organizations to Manage Risks, Enhance Returns and Optimize Liquidity. www.isda.org/2025/03/17/the-value-of-otc-derivatives-empowering-organizations-to-manage-risks-enhance-returns-and-optimize-liquidity/

²² State Teachers Retirement System of Ohio Annual Comprehensive Financial Report 2024, www.orsc.org/Assets/Reports/1637.pdf

²³ PSP Investments 2024 Annual Report, www.investpsp.com/media/filer_public/03/our-performance/annual-report-2024/pdf/PSP-2024-annual-report-en.pdf

In Canada, the Healthcare of Ontario Pension Plan (HOOPP) discloses the use of credit derivatives, including CDS and related options, as part of its broader risk management approach. HOOPP indicates these positions are used to diversify credit exposures and mitigate downside risk, with overlay structures providing flexibility to adjust exposures while preserving capacity for other investments²⁴.

The PSP and HOOPP strategies are implemented under prudent-person investment frameworks and related supervisory guidance, which permit the use of derivatives – including credit and equity total return swaps – where they are suitable, prudently managed and supported by appropriate risk and liquidity oversight, rather than restricting specific derivative types²⁵.

These examples show CDS and related derivatives can be used to fine-tune credit exposures, diversify spread risk and maintain capital efficiency.

Equity Risk

Equity markets represent a core source of returns for pension funds but also a primary driver of volatility in asset values and funding ratios. Managing this exposure is critical, as sharp equity drawdowns can quickly erode funded status and trigger contribution pressures.

To address these challenges, pension funds can deploy equity derivatives – including swaps, options and futures – to hedge downside risk, as well as to equitize cash positions, adjust portfolio exposures efficiently and capture volatility premia without the need to trade underlying securities.

Guardians of New Zealand Superannuation utilized NZ\$19.2 billion (\$10.8 billion) in equity total return swaps²⁶ in 2024. It uses equity derivatives alongside physical holdings to manage equity risk and take market exposure efficiently. The fund states that it may take equity exposure through derivatives instruments (eg, swaps or futures) that replicate the performance of equity indices²⁷.

In the UK, Clwyd Pension Fund has adopted a derivatives-based framework to manage equity risk²⁸. The fund gains equity exposure synthetically through derivatives rather than solely through physical holdings and complements this with an equity protection program. This strategy hedges a substantial portion of its equity exposure against market declines, explicitly limiting downside risk.

Clwyd Pension Fund recognizes that not all market gains will be captured compared to investing passively in equity markets (with no hedging costs). However, the cost of equity protection provides “increased actuarial certainty, which translates into lower contributions at each valuation, whilst maintaining equity exposure”.

²⁴ HOOPP 2024 Annual Report, <https://hoopp.com/docs/default-source/investments-library/annual-reports/hoopp-2024-annual-report.pdf>

²⁵ Prudent Investment Practices for Derivatives, <https://www.fsrao.ca/media/8296/download>, Public Sector Pension Investment Board Act, <https://laws-lois.justice.gc.ca/eng/acts/P-31.7/section-32.html?txhl=subject>

²⁶ Guardians of New Zealand Superannuation 2024 Annual Report, <https://nzsuperfund.nz/assets/Publications/Annual-Reports/2024-NZ-Super-Fund-Annual-Report.pdf>

²⁷ NZ Super Fund Portfolio Disclosures, <https://nzsuperfund.nz/publications/disclosures/annual-equity-listings/>

²⁸ Clwyd Pension Fund Committee, <https://committeemeetings.flintshire.gov.uk/documents/s77333/Funding%20Flight-Path%20and%20Risk%20Management%20Framework.pdf?LLL=0>

²⁹ Shropshire County Pension Fund 2024-25 Annual Report, <https://shropshire.gov.uk/committee-services/documents/s42273/Appendix%20A%20-%20Pension%20Fund%20Annual%20Accounts%202024-25%20Report.pdf>

Also in the UK, Shropshire County Pension Fund has established an equity derivatives program with Legal & General Investment Management to manage short- to medium-term equity market exposure. The strategy is designed to mitigate equity market risks while preserving dividend income from the underlying portfolio²⁹.

Similarly, Avon Pension Fund employs equity derivatives to provide protection against sharp declines in developed equity markets. The fund uses a collar-style strategy³⁰, capping some upside potential to finance downside protection. By hedging approximately 50% of exposures, Avon reduces volatility and costs, improves collateral efficiency and maintains protection against market drops³¹.

These cases highlight the diverse but consistent role of equity derivatives in pension strategies: they are applied as implementation tools to maintain exposures, efficiently rebalance positions, adjust index weights, hedge risk, harvest volatility premia and preserve liquidity and operational control.

²⁹ A collar is a derivatives-based strategy that limits both upside and downside risk by combining the purchase of a put option for downside protection with the sale of a call option to help finance the cost

³¹ Avon Pension Fund Investment Strategy Statement 2024, www.avonpensionfund.org.uk/sites/default/files/2024-04/ISS-20240322.pdf

ENHANCING RETURNS

In the low-yield environment that prevailed for much of the past 15 years, government bonds were insufficient to drive portfolio growth. Even as rates have risen more recently, pension funds continue to face structural pressures – long-dated liabilities, uncertain inflation paths and volatile markets – that require diversified sources of return. Derivatives overlays provide a capital-efficient means of generating incremental yield while keeping liability hedges intact.

Derivatives overlays provide a capital-efficient means of generating incremental yield while keeping liability hedges intact

One common approach is the use of currency overlays. Many pension funds invest heavily in foreign securities, and FX forwards are routinely employed to hedge liability risk and generate modest incremental income. In the US, California State Teachers' Retirement System (CalSTRS) reported holding \$19.6 billion notional in FX forwards through a currency management program.

The fund noted that the program netted 2 basis points (bp) return in 2024 and, since inception, has outperformed its benchmark by 38bp on an annualized basis³².

In addition to currency strategies, equity and interest rate derivatives are used to manage exposures in a cost-efficient manner. For instance, rather than physically buying or selling securities, pension funds can employ equity index futures, options or swaps to adjust portfolio beta, equitize cash holdings or hedge concentrated exposures. These instruments reduce transaction costs and allow funds to make temporary or tactical allocation adjustments without disrupting the underlying asset pool.

Fjärde AP-fonden (AP4) in Sweden uses derivatives across most of its asset management mandates³³. Specifically, AP4 uses derivatives to improve index and active management, reduce costs and simplify administration – measures that enhance net returns through more efficient portfolio implementation.

As of July 2025, Missouri State Employees' Retirement System (MOSERS) disclosed that its portable alpha portfolio delivered between 250bp and 300bp in two separate time periods³⁴. MOSERS used derivatives overlay strategies to reallocate exposure efficiently and enhance returns without shifting the physical asset base. In effect, these strategies allowed MOSERS to overlay return-generating exposure (alpha) on top of its existing beta allocations, achieving meaningful performance adjustments without transacting physical securities.

GPFG uses equity swaps in combination with purchases or sales of equities as part of the fund's secured lending and borrowing activities³⁵. These secured lending and borrowing transactions serve primarily operational purposes – enabling liquidity, leverage and collateral-efficient deployment – rather than functioning as a directional overlay on beta exposures. However, they provide an incremental return on GPFG's holdings of securities and cash. At the end of 2024, equities purchased in combination with offsetting equity swaps amounted to NOK 671 billion. Equity sales in combination with offsetting equity swaps amounted to NOK 194 billion.

³² Annual Comprehensive Financial Report, www.calstrs.com/files/d83bd9800/ACFR2023-24.pdf

³³ Fjärde AP-fonden 2024 Annual Report, www.ap4.se/globalassets/rapporter-och-innehav/2024/ap4-annual-report-2024-eng.pdf

³⁴ Exclusive: How CIO TJ Carlson is Planning his Strategy Around Portable Alpha, www.marketsgroup.org/news/cio-tj-carlson-is-planning-strategy-around-portable-alpha

³⁵ Norges Investment Bank 2024 Annual Report, www.nbim.no/en/news-and-insights/reports/2024/annual-report-2024/

HOOPP also reports using equity-based derivatives – primarily options and swaps – to support portfolio implementation. HOOPP notes these instruments are used for yield enhancement and to adjust exposures to specific indices without directly buying or selling underlying securities, improving capital efficiency relative to cash equities³⁶.

These overlay strategies share several themes. First, they leverage existing exposures as collateral, avoiding large incremental capital commitments. Second, they capture risk premia – from volatility, basis or options – that can be uncorrelated with other portfolio holdings, enhancing total portfolio returns. Third, they preserve core immunization, ensuring that liability-driven benchmarks remain satisfied even as overlays generate incremental yield.

³⁶ HOOPP 2024 Annual Report, <https://hoopp.com/docs/default-source/investments-library/annual-reports/hoopp-2024-annual-report.pdf>

ACCESSING HARD TO TRADE MARKETS

Pension funds may want to diversify beyond traditional asset classes, but direct investment in certain markets can be limited by illiquidity, costs and regulatory constraints. Derivatives provide a capital-efficient alternative, offering synthetic exposure that enables funds to access these markets, adjust risk-return profiles and rebalance portfolios while preserving liquidity and control.

For example, Australian superannuation funds report the use of total return swaps to synthetically replicate certain hard-to-access exposures when direct investment may be impractical³⁷. This approach allows schemes to capture the desired exposures while conserving capital and avoiding settlement frictions.

In public markets, equity basket swaps allow firms to obtain dynamic index or regional exposures without trading hundreds of individual securities. Cashflows are exchanged against the basket's aggregate performance, reducing transaction costs and bypassing local trading restrictions.

Derivatives are particularly valuable in jurisdictions with thin liquidity or regulatory limits on foreign participation. Asia-Pacific pension schemes, for example, have employed equity swaps to gain broad exposure to regional indices, structuring the positions against floating-rate benchmarks to calibrate yield targets and risk tolerances³⁸. By adjusting notional amounts, funds can align exposures with evolving strategic objectives while maintaining operational efficiency.

Derivatives allow pension funds to access hard-to-trade markets with precision and capital efficiency, preserving liquidity and maintaining target exposures

This approach delivers the exact economic exposure desired, without directly owning the underlying equities or incurring excessive operational costs.

For example, Dutch pension fund ABP has stated that it is not possible to invest in some asset classes like commodities without derivatives and “there are also situations where derivatives are more liquid than physical assets”³⁹.

Derivatives allow pension funds to access hard-to-trade markets with precision and capital efficiency, preserving liquidity and maintaining target exposures. Implemented under robust governance and tied to risk and funding budgets, synthetic positions can replicate the desired exposure with lower operational frictions than direct holdings. As market liquidity, regulation and the fund's objectives evolve, these tools can provide a scalable, adaptable mechanism to adjust exposures without disrupting strategic allocations.

³⁷ ISDA, Australian Superannuation Funds Current and Future Uses of Derivatives, www.isda.org/2025/05/20/australian-superannuation-funds-current-and-future-uses-of-derivatives/

³⁸ ISDA, Derivatives Usage and the Buy Side: Asia-Pacific Perspectives, www.isda.org/2024/11/18/derivatives-usage-and-the-buy-side-asia-pacific-perspectives/

³⁹ ABP's official Actuariële en Bedrijfstechnische Nota (ABTN) 2025, www.abp.nl/content/dam/abp/documenten/juridisch/ABTN-2025-getekend.pdf

IMPLEMENTING LIABILITY DRIVEN INVESTMENT

Aligning investment strategies with long-term benefit obligations is a core objective of pensions and is a complex challenge in volatile markets. LDI frameworks provide a disciplined approach to managing this complexity, ensuring that asset cashflows, durations and sensitivities move in tandem with the plan's evolving liabilities.

While traditional LDI frameworks rely heavily on long-dated bonds, modern approaches tend to incorporate derivatives – such as IRS, inflation swaps, longevity swaps and FX forwards – for greater flexibility, precision and cost efficiency.

These instruments enable pension funds to adjust exposures dynamically, preserve liquidity and stabilize funded status during changing market conditions. The following examples specifically reference cases where pension funds identified derivatives as integral to their LDI strategies.

The Nationwide Pension Fund aimed to match the LDI portfolio's long-term liabilities with IRS in relation to interest rate sensitivities to “better extend the duration of its fixed income portfolio”⁴⁰. Nationwide reported £800.9 million notional in inflation rate swaps with four term buckets – less than one year, one year to five years, five to 10 years and 10 years to 20 years – to neutralize the inflation sensitivity of its liabilities and stabilize benefit indexation and sponsor contributions.

An Asia-Pacific pension fund reported using IRS to transform floating-rate assets into fixed-rate equivalents, aligning cashflows with scheduled benefit payouts without relying on illiquid long bonds for its LDI⁴¹. The fund transforms a pool of floating rate assets into fixed rate equivalents, aligning cashflows with benefit payouts, without buying long term government bonds outright.

European occupational pensions echo these practices. Dutch funds – among the earliest adopters of LDI via derivatives – held 27.6% of Europe's non centrally cleared IRS in 2020, primarily as floating payer/fixed receiver swaps that matched the duration profile of liabilities, thereby stabilizing funding ratios and enabling trustees to allocate cash to growth assets⁴².

LDI aims to make assets mirror liabilities, with derivatives typically used to achieve this efficiently. IRS, inflation swaps and swaptions are used to manage duration and inflation, FX forwards and cross-currency swaps convert foreign coupons/principal into domestic-currency cashflows, and longevity swaps mitigate life-expectancy risk, freeing capital from illiquid long bonds. This can result in less funding-ratio noise and more predictable contributions in the long run.

The episode involving some UK LDI funds in September 2022 underscores the importance of robust margin and liquidity risk management within derivatives-based LDI strategies⁴³. Following a UK 'mini budget', long-dated gilt yields rose sharply, leading to large variation margin (VM) calls on leveraged IRD and related financing positions. To meet these calls, certain funds sold long-dated gilts into already stressed markets, amplifying yield moves and prompting additional margin calls and forced sales. The Bank of England introduced a temporary long-dated gilt

⁴⁰ Nationwide Annual Report & Accounts, <https://nationwidepensionfund.co.uk/library/annual-report-accounts-to-31-march-2024>

⁴¹ ISDA, Derivatives Usage and the Buy Side: Asia-Pacific Perspectives, www.isda.org/2024/11/18/derivatives-usage-and-the-buy-side-asia-pacific-perspectives/

⁴² ISDA, The Value of OTC Derivatives: Empowering Organizations to Manage Risks, Enhance Returns and Optimize Liquidity, www.isda.org/2025/03/17/the-value-of-otc-derivatives-empowering-organizations-to-manage-risks-enhance-returns-and-optimize-liquidity/

⁴³ Bank of England Financial Stability Report, www.bankofengland.co.uk/financial-stability-report/2022/december-2022; International Monetary Fund, Putting Out the NBFIRE? Lessons From the UK's LDI Crisis, www.imf.org/en/Publications/WP/Issues/2023/09/29/Putting-Out-the-NBFIRE-Lessons-from-the-UK-s-Liability-Driven-Investment-LDI-Crisis-539683

purchase facility on financial stability grounds. Subsequent official reports have focused on leverage, collateral frameworks and liquidity management in some LDI strategies, rather than on any structural flaw in the use of derivatives as liability-hedging instruments.

REGULATIONS AND CHALLENGES

Derivatives are subject to multiple regulatory requirements across jurisdictions. Broadly, these rules fall into five categories – parameters for usage, clearing, margining, reporting and trading.

While designed to strengthen market integrity and transparency, these rules can pose specific challenges for pension funds given their long-dated liabilities, portfolio structures and liquidity needs.

Parameters for Usage

Many jurisdictions only permit pension funds to use derivatives for liability hedging, risk mitigation or efficient portfolio management – not for speculative purposes. In the EU, the Institutions for Occupational Retirement Provision (IOPR) II Directive and the Dutch prudent person regime explicitly restrict usage to liability-related purposes⁴⁴.

In Canada, pension investment is primarily governed at the provincial level under prudent-person standards. In Ontario, for example, the Pension Benefits Act requires administrators to exercise the care and skill that a person of ordinary prudence would apply in dealing with the property of another⁴⁵, while plan-specific statutes, such as the OMERS Act⁴⁶ and the Teachers' Pension Act⁴⁷, expressly permit entering into derivatives contracts linked to the performance of the pension fund or its investments. Supervisory guidance notes that most plans invest predominantly through pooled funds and do not employ significant leverage or heavy derivatives use at the plan level. Where derivatives are used more extensively, it emphasizes governance, risk measurement and liquidity management⁴⁸.

In Mexico, Comisión Nacional del Sistema de Ahorro para el Retiro (CONSAR) permits Administradoras de Fondos para el Retiro (AFORE) companies to use IRS based on the Interbank Equilibrium Interest Rate for duration management, provided trades are cleared at the Mexican Derivatives Exchange (MexDer) or an approved central counterparty⁴⁹.

Rules issued by India's Pension Fund Regulatory and Development Authority (PFRDA) conditionally approve the use of over-the-counter (OTC) derivatives to hedge or satisfy a risk management requirement⁵⁰. Meanwhile, China's regulators limit pension scheme derivatives use for hedging only⁵¹. These restrictions ensure alignment with pension promises but can limit flexibility in deploying derivatives for tactical or opportunistic adjustments.

To support the cross-border flow of capital and to facilitate the use of derivatives by asset managers, ISDA has—in recent years—undertaken analyses of rules and regulations in China⁵² and India⁵³ to identify potential areas for market liberalization.

⁴⁴ PensionsEurope input to the European Commission consultation on the review of the central clearing framework in the EU, <https://pensioneurope.eu/wp-content/uploads/PensionsEurope-input-to-EC-consultation-on-the-review-of-the-central-clearing-framework-in-the-EU-March-2022.pdf>

⁴⁵ Pensions Benefit Act, www.canlii.org/en/on/laws/stat/rso-1990-cp8/latest/rso-1990-cp8.html

⁴⁶ Ontario Municipal Employees Retirement System Act, www.ontario.ca/laws/statute/06o02

⁴⁷ Teachers' Pension Act, www.ontario.ca/laws/statute/90t01

⁴⁸ Guideline No. 10 – Guideline for Risk Management for Plan Administrators www.capsa-acor.org/Documents/View/2101

⁴⁹ Pricing of Mexican Interest Rate Swaps in Presence of Multiple Collateral Currencies, <https://arxiv.org/abs/1703.00923>

⁵⁰ Supervision of Selected Pension Fund Investments, www.oecd.org/content/dam/iops/en/working-papers/WP-43-Supervision-of-pension-investments-overseas-OTC-derivatives-structured-crypto.pdf

⁵¹ China Pensions Reform, <https://assets.kpmg.com/content/dam/kpmg/cn/pdf/en/2023/06/china-pensions-reform.pdf>

⁵² ISDA, Developing Safe, Robust, and Efficient Derivatives Markets in China, www.isda.org/2021/12/15/developing-safe-robust-and-efficient-derivatives-markets-in-china/

⁵³ ISDA, Charting the Next Phase of India's OTC Derivatives Market, www.isda.org/2024/03/04/charting-the-next-phase-of-indias-otc-derivatives-market/

Clearing

Central clearing mandates under the European Market Infrastructure Regulation (EMIR) and the US Dodd-Frank Act were designed to reduce systemic risk, but pension funds face distinct challenges. In the EU, pension scheme arrangements (PSAs) were granted a time-limited exemption in recognition of the impact of having to source cash collateral to meet daily margin calls. That time-limited exemption was renewed several times but expired in 2023.

EU PSAs with OTC derivatives positions that exceed any of the EMIR clearing thresholds must therefore clear all derivatives that are in scope of the clearing obligation. The PSAs below these thresholds benefit from an exemption for small financial counterparties (SFC). In contrast, the UK made the PSA clearing exemption permanent in 2025⁵⁴.

In Mexico, AFORÉ companies must clear IRS through MexDer, while IRS must be registered with local clearing houses in Brazil.

Clearing requires the posting of high-quality collateral, typically cash or government bonds. This compels pension schemes to hold liquidity buffers or sell assets, producing a yield drag that erodes returns and undermines efficiency⁵⁵. During periods of market stress, sudden VM calls can create pressures if assets are sold in falling markets to raise cash⁵⁶.

Participation in cleared markets also entails significant operational demands. Becoming a direct clearing member – or accessing via a sponsored model – requires extensive legal documentation, collateral agreements, operational workflows and robust infrastructure. While these measures ensure prudent participation, they add cost and complexity, particularly for smaller schemes⁵⁷.

ISDA working groups dedicated to clearing issues (comprising both buy- and sell-side firms) help identify and address risk management, collateral, operational, regulatory and other issues that impact the efficacy of clearing.

Margining

Under standards agreed by the Basel Committee on Banking Supervision and International Organization of Securities Commissions, in-scope non-cleared derivatives are subject to VM and initial margin (IM) requirements. In the case of IM, firms come into scope if their average aggregate notional amount exceeds €8 billion at the group level⁵⁸. In the UK, EU and US, pension funds above this threshold must segregate IM at a custodian, adding operational complexity.

As they approach the IM threshold, pension funds must negotiate credit support annexes to define collateral terms, thresholds and transfer mechanics. These agreements specify eligible collateral, valuation haircuts, minimum transfer amounts and dispute-resolution procedures.

⁵⁴ The Pension Fund Clearing Obligation Exemption (Amendment) Regulations 2025, www.legislation.gov.uk/ukdsi/2025/9780348270341

⁵⁵ ESMA Recommends Clearing Obligation for Pension Funds to Start in June 2023, www.esma.europa.eu/press-news/esma-news/esma-recommends-clearing-obligation-pension-funds-start-in-june-2023

⁵⁶ Pension Liquidity Risk, www.icpmnetwork.com/wp-content/uploads/2024/08/Pension-Liquidity-Risk.pdf

⁵⁷ Global Systemically Important Bank Selects Transcend for CCP Integration, www.transcendstreet.com/global-systemically-important-bank-selects-transcend-for-ccp-integration/

⁵⁸ Margin Requirements for Non-centrally Cleared Derivatives, www.bis.org/bcbs/publ/d499.pdf

For example, California Public Employees' Retirement System (CalPERS) reported \$1.3 billion in derivatives subject to counterparty credit risk and held \$252 million in cash collateral against these exposures as of June 30, 2024⁵⁹. While funds of this scale may be able to manage margin requirements, smaller schemes face high onboarding costs and ongoing infrastructure demands.

Some market participants have advocated for broader collateral eligibility – such as corporate bonds with duration-adjusted haircuts – to ease yield drag and reduce liquidity mismatches⁶⁰. In the absence of such reforms, many pension funds must hold cash buffers or liquidate assets to meet collateral calls, undermining efficiency and increasing vulnerability to liquidity stress.

To help counterparties more effectively and efficiently calculate required margin amounts, ISDA has developed the ISDA Standard Initial Margin Model (ISDA SIMM)⁶¹, which provides a common methodology for the calculation of regulatory IM amounts. The ISDA SIMM is widely used around the world to support the efficient exchange of regulatory IM and is regularly reviewed by global regulators.

ISDA's buy- and sell-side members are engaged in analysis, discussion and advocacy on a range of collateral-related regulatory and operational issues.

Reporting

Most major jurisdictions have mandatory – but varying – trade reporting requirements. While these regimes enhance transparency, they also impose operational demands. Smaller pension funds often depend on delegated reporting due to limited infrastructure and data quality, and reconciliation challenges remain. Divergent global standards compound the burden, creating duplication for funds operating across multiple jurisdictions.

ISDA supports members and market participants in addressing reporting challenges by advocating for more harmonized, consistent and streamlined rules and encouraging policymakers to make better use of the significant amount of data already available to them.

ISDA has also developed a Digital Regulatory Reporting (DRR) initiative⁶², which helps market participants comply with regulatory reporting requirements by using the Common Domain Model⁶³ – an open-source data standard for financial products, trades and lifecycle events – to transform an industry-agreed interpretation of each rule set into machine-executable code. This code can be used as the basis of implementation or to validate that a firm's own interpretation of the rules is aligned with the golden-source standard, increasing the accuracy and consistency of data reported to regulators and reducing the time, resources and costs associated with compliance. The ISDA DRR currently covers reporting rules in eight jurisdictions and will ultimately extend to 12 rule sets in nine jurisdictions.

Trading

Execution mandates require standardized swaps to be executed on regulated venues. In the US, swaps designated as 'made available to trade' must be transacted on a swap execution facility or designated contract market. Under the Markets in Financial Instruments Regulation in the EU, derivatives subject to the trading obligation must be executed on regulated markets, multilateral trading facilities or organized trading facilities – although EU pension scheme arrangements that are also SFCs are exempt from the EU derivatives trading obligation (DTO) by virtue of being exempt from the EU clearing obligation.

⁵⁹ CalPERS 2023-2024 Annual Comprehensive Financial Report, www.calpers.ca.gov/documents/acfr-2024/download?inline

⁶⁰ ISDA Digital Regulatory Reporting (ISDA DRR), www.isda.org/isda-solutions-infobase/isda-digital-regulatory-reporting/

⁶¹ Common Domain Model (CDM), www.isda.org/isda-solutions-infobase/cdm/

In the UK, PSAs exempt from the central clearing obligation under UK EMIR are also exempt from the UK DTO, reflecting recognition of the operational challenges pension funds face in meeting these requirements. UK PSAs are therefore exempt from the DTO given the permanent exemption from the UK clearing obligation.

Derivatives market regulations and trade execution rules are complex, particularly given differences in requirements across jurisdictions. ISDA engages with members through various working groups to understand issues and concerns and liaises with regulators to obtain clarifications where necessary, as well as advocating for greater consistency and efficiency in regulatory requirements.

THE ROLE OF ISDA

ISDA has played a key role in derivatives markets since its inception more than 40 years ago. With over 1,000 member firms from 78 countries, ISDA's focus is to foster safe and efficient derivatives markets to facilitate effective risk management for all users of derivatives.

ISDA represents all market participants globally, promoting high standards of commercial conduct that enhance market integrity, and leading industry action on derivatives issues

ISDA represents all market participants globally, promoting high standards of commercial conduct that enhance market integrity, and leading industry action on derivatives issues. Areas of focus include:

Standardized documentation: A fundamental part of ISDA's mission has been to develop robust legal standards and documentation, including the ISDA Master Agreement, which sets out the terms for a derivatives trading relationship and allows two counterparties to net their various obligations into a single payment in the event of a default. This has continued to be a priority for ISDA, and the suite of standard industry documents and best practices now runs into the hundreds, including credit support annexes to govern the exchange of IM and VM.

Market infrastructure for derivatives trading, clearing and reporting: ISDA has developed a variety of mutualized solutions to address common industry problems. This includes the ISDA SIMM⁶⁴, which provides a common methodology for the calculation of regulatory IM requirements, cutting costs for market participants and mitigating the potential for disputes, and the ISDA DRR⁶⁵, which uses the CDM⁶⁶ to transform an industry-agreed interpretation of new or amended regulatory reporting rules into free, machine-executable code. This makes implementation of reporting requirements more efficient and cost effective and reduces the potential for regulatory penalties for misreported data.

ISDA has also developed ISDA Create, an online solution that allows financial institutions to extract key structured legal and commercial data while automating the creation, negotiation and execution of key derivatives documentation⁶⁷. This is on top of ISDA MyLibrary, an online hub that houses core ISDA documentation in digital form⁶⁸, and the ISDA Notices Hub⁶⁹, an online platform that enables near-instantaneous delivery and receipt of termination notices.

An advocate for effective risk and capital management: ISDA has worked with authorities around the world to make the case for netting and develop the necessary legislation to ensure its enforceability and has published 90 netting opinions for countries around the globe⁷⁰. By allowing counterparties to offset their various obligations into a single net amount owed by one party to the other, netting significantly reduces credit risk and increases the capacity for firms to lend and trade. ISDA members can access ISDA's complete collection of netting and collateral opinions, an efficient way of meeting regulatory requirements to demonstrate enforceability of netting.

⁶⁴ ISDA SIMM, www.isda.org/isda-solutions-infohub/isda-simm/

⁶⁵ ISDA DRR, www.isda.org/isda-solutions-infohub/isda-digital-regulatory-reporting/

⁶⁶ CDM, www.isda.org/isda-solutions-infohub/cdm/

⁶⁷ ISDA Create, www.isda.org/isda-solutions-infohub/isda-create/. ISDA Create is free for the buy side

⁶⁸ ISDA MyLibrary, www.isda.org/isda-solutions-infohub/mylibrary/. New members receive a six-month free trial, which provides digital access to ISDA documentation with powerful search and comparison tools. The trial includes enterprise-level access and the ISDA Clause Library. After the trial, members benefit from discounted rates

⁶⁹ ISDA Notices Hub, www.isda.org/isda-solutions-infohub/isda-notices-hub/. The ISDA Notices Hub is free for the buy side

⁷⁰ Opinions Overview, www.isda.org/opinions-overview/

Regulatory advocacy and policy development: ISDA works with regulators to shape global derivatives rules and represent the interests of derivatives market participants, driven by feedback and engagement in the various ISDA working groups⁷¹.

Training and education: ISDA runs a series of training events⁷² around the globe on all aspects of derivatives trading and risk management, from the fundamentals of derivatives to masterclasses on derivatives legal documentation to training on the ISDA SIMM. Members can also access a quarterly buy-side newsletter that includes updates on ISDA initiatives, including links for relevant working groups.

⁷¹ ISDA Committees, www.isda.org/committees/

⁷² ISDA Events, www.isda.org/events

CONCLUSION

Derivatives are integral to pension risk and investment management. Used with clear objectives and strong governance, they provide the precision to align assets with long-dated liabilities, the flexibility to adjust exposures as conditions change and the ability to preserve funded status through changing market conditions.

This paper highlights pension funds that use interest rate and inflation derivatives to manage duration and real-rate exposure, FX derivatives to stabilize liability-currency cashflows for globally diversified portfolios, credit and equity derivatives to hedge, rebalance and implement allocations efficiently, and overlay strategies to enhance and preserve core liability protection. Derivatives also expand market access, allowing schemes to replicate otherwise hard-to-access assets. Clearing, margining, reporting and trading rules shape how pensions use derivatives.

Taken together, derivatives enable pension funds to meet their fundamental mandate: achieving promised benefits with greater certainty, while preserving the capacity to generate diversified returns over time.

ABOUT ISDA

Since 1985, ISDA has worked to make the global derivatives markets safer and more efficient. Today, ISDA has over 1,000 member institutions from 78 countries. These members comprise a broad range of derivatives market participants, including corporations, investment managers, government and supranational entities, insurance companies, energy and commodities firms, and international and regional banks. In

addition to market participants, members also include key components of the derivatives market infrastructure, such as exchanges, intermediaries, clearing houses and repositories, as well as law firms, accounting firms and other service providers. Information about ISDA and its activities is available on the Association's website: www.isda.org. Follow us on [LinkedIn](#) and [YouTube](#).