PENSIONS AND
LIFETIME SAVINGS
ASSOCIATION

*October 2019*

# CASHFLOW DRIVEN INVESTMENT (CDI)

## MADE SIMPLE GUIDE

**ACKNOWLEDGEMENTS**

We would like to thank Schroders for its help producing and sponsoring this guide. For further information visit

**https://www.schroders.com/ukpensions**

Schroders

This guide is for information only.
It is not legal or investment advice.

Published by the Pensions and Lifetime Savings Association 2019

# CONTENTS

# 1 INTRODUCTION

**ALMOST ALL PENSION SCHEMES HAVE AN OBJECTIVE OF MEETING LIABILITIES AS THEY FALL DUE. IN AN IDEAL WORLD THEY WOULD DO THIS BY INVESTING IN A 'CASHFLOW MATCHING' GILT PORTFOLIO – MEANING THAT ALL FUTURE LIABILITY CASHFLOWS WOULD BE MET WITH THE INCOME AND REDEMPTION PROCEEDS FROM GOVERNMENT BACKED BONDS.**

However, few defined benefit pension schemes are currently in such a comfortable position. Most have constructed their investment portfolios to achieve this objective using higher-risk assets such as equities to close their funding gap. In doing so they are effectively relying rely on a combination of dividend income and equity sales to meet some of the liabilities as they fall due.

A Cashflow Driven Investment (CDI) approach can provide a middle path: with a large allocation to assets that provide both growth and a greater certainty of delivering the required cashflows without any required future disinvestment in unknown future market conditions. In this way, CDI can provide far more certainty of outcome than a growth and matching approach.

In summary, the main features of a CDI solution are:

- The funds required to meet a large portion of the scheme's liability cashflows are secured with the income and redemption proceeds from a wide range of fixed income assets offering a yield in excess of gilts.
- A close cashflow match is achieved by combining CDI with well-established LDI techniques.
- The overall investment strategy offers a greater assurance of achieving the required return compared with traditional strategies.
- The risk profile can be tailored to meet covenant constraints or longer-term objectives such as buy-out.
- It potentially offers low governance. Once designed and implemented, the strategy should lock down a plan to meet the liabilities with limited future modification.

It is worth remembering that the basic principles of CDI have been employed for a long time by insurance company annuity funds. The idea of pension schemes adopting a similar but more flexible approach that is better suited to their needs while not being bound by insurance company regulations has also been discussed for a while. Therefore CDI is not really new but, as we discuss, an idea which potentially fits the circumstances of a number of pension schemes today.

This guide will explain the building blocks of CDI, who it is appropriate for, the rationale for using it and how to monitor it.

**Neil Walton** Head of Investment Solutions, Schroders

**Jon Exley** Solutions Manager, Schroders

**Patrick O'Sullivan** Solutions Manager, Schroders

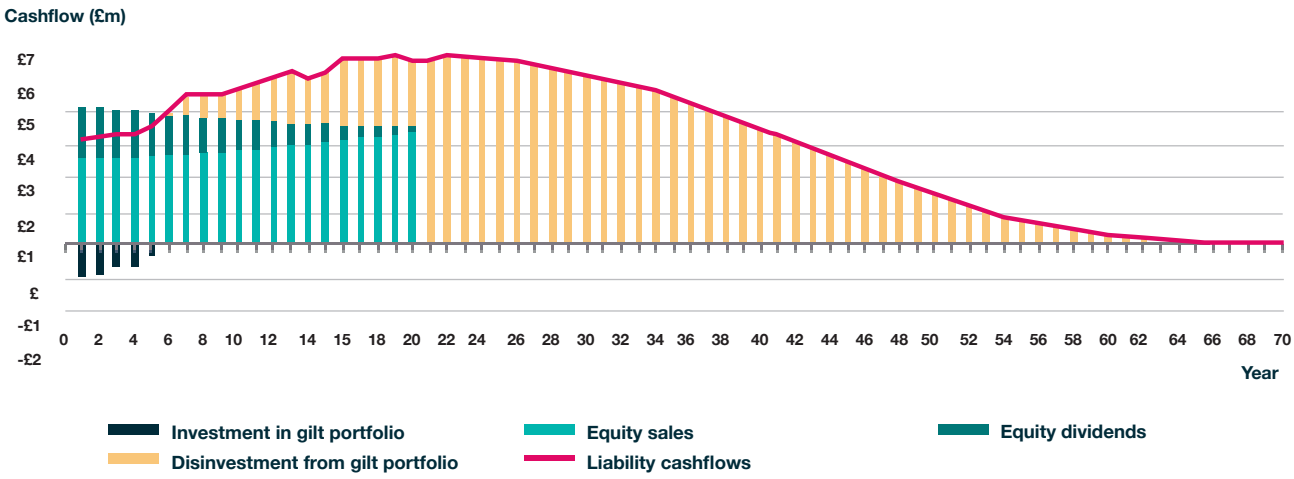
# 2 A COMPARISON OF TWO LIABILITY CASHFLOW MODELS

## AN EXAMPLE OF A TRADITONAL APPROACH

Let's start with a pension scheme that is 90% funded on a gilts valuation basis and assume that it invests only in equities and gilts. We can project its asset and liability cashflows by making assumptions for the growth of equity prices and dividends. We will ignore risk initially, so this is just a projection of an expected outcome. Once we have made our assumptions all we need to do to is create a strategy to 'meet the liabilities as they fall due'. This means that we need to find an equity allocation that generates enough return to pay all of the liabilities out of the projected fund without running out of money.

A scheme with a 35% equity allocation which de-risks into a 100% gilts strategy over twenty years is illustrated below. This shows the expected cashflows meeting the liability cashflows from a combination of expected equity dividends, equity sales and disinvestments from the gilt portfolio.

**FIGURE 1: ASSET AND LIABILITY CASHFLOWS FOR SCHEME INVESTED IN EQUITIES AND GILTS**



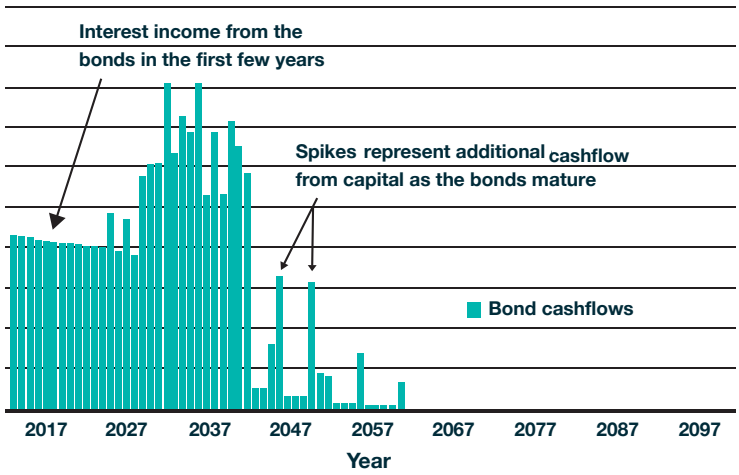

Our sales plan results in more cash than required to pay pensions in the early years, while in the later years the equity sales alone aren't enough. This isn't a problem though, as in the early years the excess cash from sales is invested in gilts (shown as green bars) to meet later cashflows. In the middle years the pension outgo is met from both the equities and gilts and after 20 years the cashflows are met from the gilt portfolio (as the assets are now 100% invested in gilts).

## AN EXAMPLE OF A CDI STRATEGY

For a CDI strategy we would replace the equities with a differently scaled (i.e. not necessarily 35% as above) allocation to fixed income assets held on a 'buy and maintain' basis.

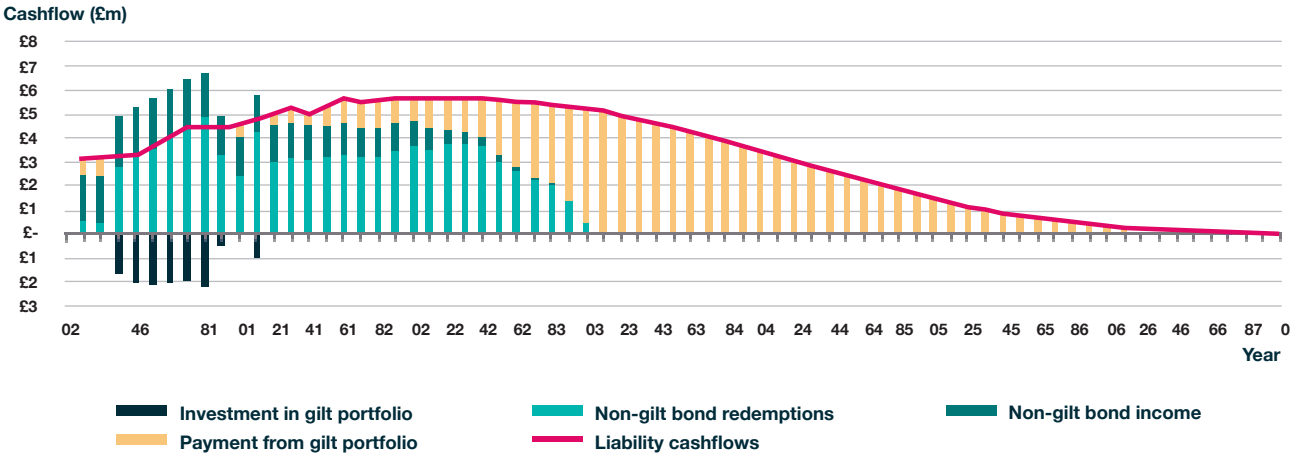
Figure 2 below illustrates the projected cashflows of such a portfolio of long-dated corporate bonds. These cashflows include both the interest income and the redemption amounts as the bonds mature. In making such projections the only difference from gilts is that we must make an allowance for the possible failure of some issuers to meet their interest and capital commitments. However, the additional income earned on these bonds is expected to more than compensate for this.

**FIGURE 2: CASHFLOWS FROM A PORTFOLIO OF LONG-DATED CORPORATE BONDS**




In addition to long-dated corporate bonds, there is a wide range of other bond assets that can provide contractual cashflows. A CDI solution will model these payments and use them to construct a profile of cashflows. A portfolio constructed this way is illustrated below with the asset cashflows separated between gilts and non-gilts.

**FIGURE 3: ASSET AND LIABILITY CASHFLOWS FOR SCHEME INVESTED IN CORPORATE BONDS AND GILTS**




The CDI portfolio does not need to match the liability cashflows exactly. The gilt portfolio fills in gaps and mops up excess asset inflows (shown as green bars) by reinvesting any excess cash into gilts. The portfolio is designed to meet a client's preferred risk profile and deliver the required overall quantity of cash and not to match the liability cashflows precisely.

So, we can see that the cashflow diagrams for our traditional and CDI strategies look very similar and they are both expected to meet the liability cashflows as they fall. What is so different about CDI? We discuss this in the following section.

# 3 MORE CERTAINTY

## THE MAIN ATTRACTION OF CDI IS THAT IT OFFERS SIGNIFICANTLY MORE CERTAINTY OF ACHIEVING THE TARGET RETURNS REQUIRED TO MEET EACH LIABILITY PAYMENT AS IT FALLS DUE. THIS IS BECAUSE:

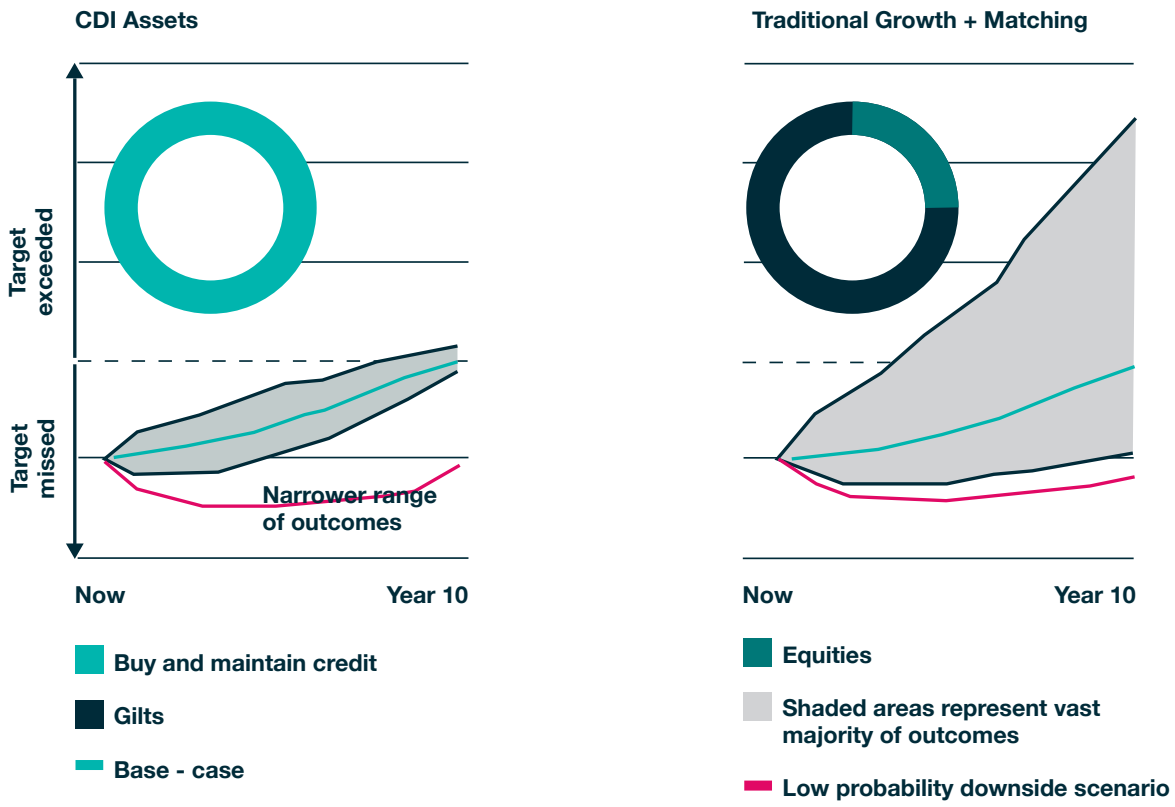
- The 'shape' of the return profile from 'buy and maintain' CDI assets is fundamentally different from the shape of the return profile of conventional growth assets – CDI assets have a capped upside but more certainty of achieving the target outcome.
- The assumptions on which a CDI strategy are built are more robust than those of traditional growth assets because the portfolio yield is known at the time of purchase.

### THE SHAPE OF THE RETURN PROFILE

The difference in the 'shape' of return is illustrated in the charts in Figure 4 below; one of which shows a traditional 'growth plus matching' strategy, and one which shows a CDI approach.

The funnels illustrate how much uncertainty both strategies have around their median 'base case' of meeting a cashflow target in year 10. While a CDI strategy can be seen to provide greater certainty (i.e. a narrower range of outcomes), it comes at the cost of less scope for the upside you see in the equity portfolio. In addition, CDI could potentially cause greater losses in very unlikely extreme downside scenarios. This is because the traditional 'growth plus matching' investment strategy has only 35% invested in 'risk' assets (equities), whereas the CDI comparison has 100% in 'risk' assets (buy and maintain credit).

**FIGURE 4: CDI OFFERS A MORE CERTAIN PATH THAN A TRADITIONAL 'GROWTH PLUS MATCHING' PORTFOLIO**



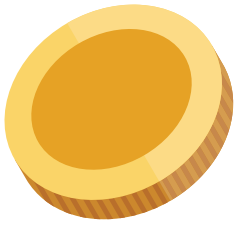
It is important to note that the return characteristics illustrated above only apply if the credit portfolio is held to maturity using a 'buy and maintain' approach. If, for example as part of the portfolio maintenance process, one of the 10-year bonds in the portfolio is sold after one year, it would need to be replaced by a nine-year bond with a similar or better yield at that time, otherwise the target liability match would not be preserved.

## CDI ASSUMPTIONS

In addition to this difference in 'shape' of return it can also be argued that CDI strategies are far less reliant on key expected return assumptions when compared with traditional 'growth plus matching' investment strategies. The yield on a bond is known at the time of purchase, even if an assumption has to be made for possible defaults, whereas the expected return on equities can only be forecast with a wide margin for error.

## POTENTIAL IMPLICATIONS FOR ACTUARIAL VALUATIONS

This greater certainty of outcome overall means that it may also be possible to agree actuarial valuation funding plans that are integrated with the investment strategy, whereby the liability discount rate moves in line with the aggregate yield on the assets. Adopting this approach can significantly reduce the volatility of the reported funding position. However, the smoothing of the reported funding position is not in itself a justification for using the approach. CDI is fundamentally an investment solution, with the ability to stabilise the valuation position being an attractive feature rather than an end in itself.



# 4 COMBINING CDI AND LDI

## A CDI STRATEGY IS DESIGNED TO DELIVER SUFFICIENT FUNDS TO MEET ALL THE LIABILITY CASHFLOWS AS THEY FALL DUE. IMPORTANTLY THOUGH, THE TIMING OF THE DELIVERY OF THESE FUNDS MIGHT NOT EXACTLY FIT THE TIMING OF THE LIABILITY CASHFLOWS. FURTHERMORE, THE LIABILITIES MAY BE EXPOSED TO INFLATION RISK WHICH IS NOT COVERED BY THE BOND PORTFOLIO; THIS IS WHERE LDI COMES IN.

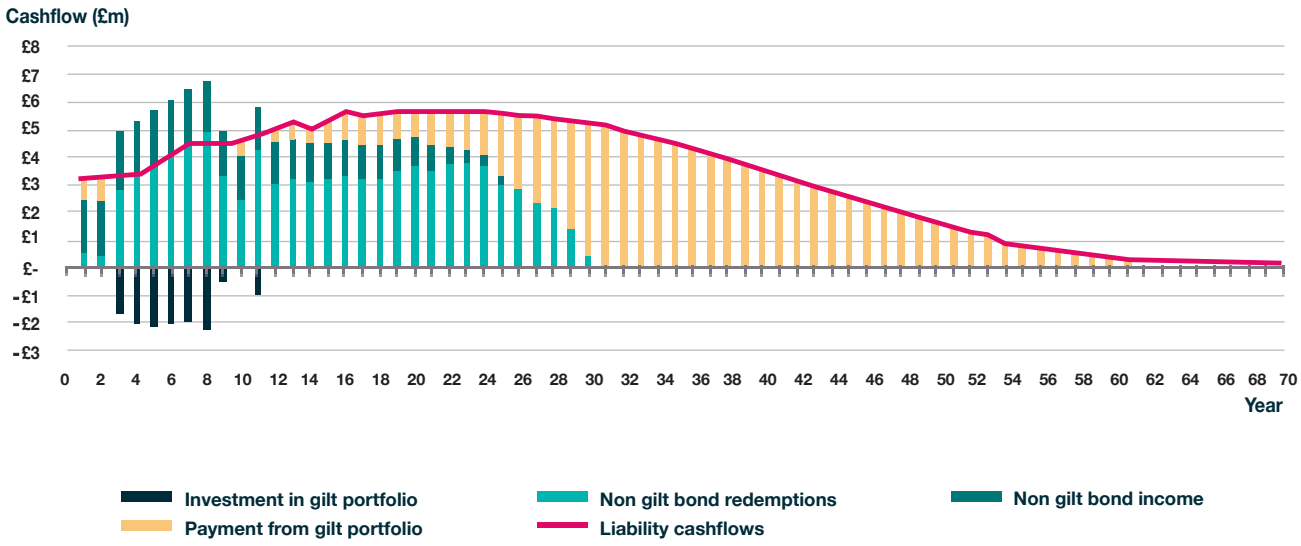
CDI is not an alternative to LDI and in fact it works best when it is fully integrated with an LDI solution. Even in our examples in the previous section, we assumed that the very longest-dated pension liabilities will still need to be met with government bonds, as there are no alternative contractual cashflow (CDI) assets readily available at the very longest maturities. Furthermore, from a purely practical perspective, a CDI portfolio will not be constructed to deliver the cash required to pay pensions and lump sums on a monthly basis. Instead, the LDI portfolio will act as a liquidity "reservoir" – or bank account – to absorb excess asset cashflows and from which to drawdown as needed on a monthly basis.

### LDI WILL ALSO PROTECT AGAINST THE FOLLOWING KEY RISKS:

1. Inflation risk: LDI will be required to add inflation exposure to CDI assets to match the inflation linkage of many pension liabilities.
2. Currency risk: The derivative capabilities of an LDI manager can be used to hedge cashflows from non-GBP fixed income assets into GBP cashflows
3. Reinvestment risk: LDI can hedge the interest rate risk associated with reinvesting into gilts any excess cashflows received from the CDI assets (as shown on page 6) to meet later pension payments.

In general, the role of LDI is to be what might be called the 'completion portfolio': complementing CDI by filling in the gaps that it cannot deliver on its own.

**FIGURE 5: THE BASIC PRINCIPLES OF CDI**

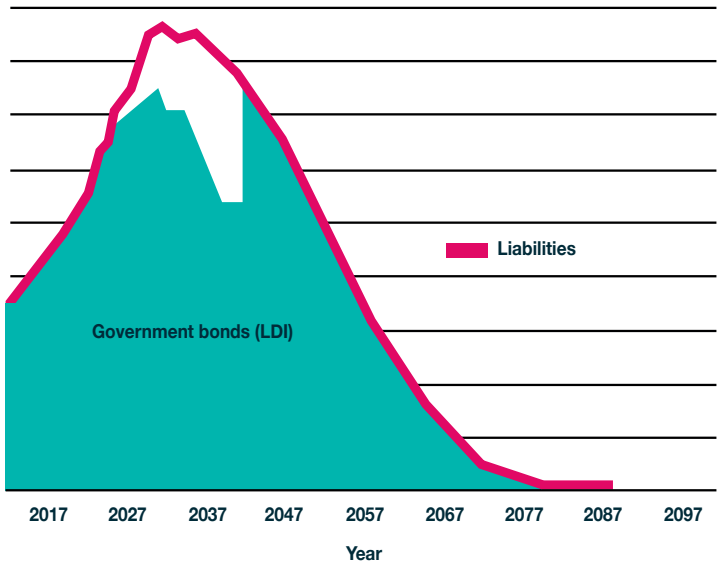


# 5 WHICH ASSETS FIT WITHIN A CDI APPROACH

**ASSETS THAT ARE SUITABLE FOR CDI NEED TO HAVE CONTRACTUAL CASHFLOWS TO PROVIDE BOTH INCOME AND REDEMPTION OF CAPITAL. IN ADDITION, THEY NEED TO BE AVAILABLE IN A 'ROLL-DOWN' FORMAT, I.E. ABLE TO DISTRIBUTE THE INCOME AND REDEMPTION AMOUNTS AS THEY FALL DUE RATHER THAN BEING CONTINUALLY REINVESTED. IMPORTANTLY THE COMBINED PORTFOLIO ALSO NEEDS TO PROVIDE ENOUGH 'SPREAD' OVERALL TO FUND THE LIABILITIES.**

The importance of this is shown in Figure 5 where corporate bonds and other credit assets are assumed to provide a yield in excess of gilts. Figure 6 below shows the gap in meeting liability cashflows that would occur if the pension scheme instead invested solely in government bonds. These cashflows would not be sufficient to meet the liability cashflows. This would be the case irrespective of the structure of the gilt portfolio, e.g. if the gilt portfolio was restructured to fully match the nearer term liabilities then there would be a cashflow shortfall (unshaded area) against the longer-dated liabilities.

**FIGURE 6: A PENSION SCHEME ONLY INVESTED IN GOVERNMENT BONDS THROUGH LDI**

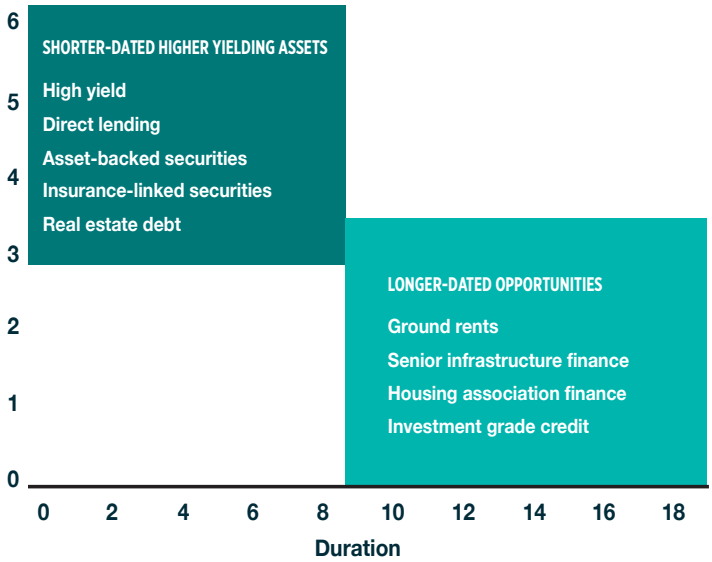



However, by investing in corporate bonds, the scheme would be able to generate sufficient cashflows to meet the liabilities and thus fill the gap. The additional amount of cash generated by this strategy compared with investing only in gilts can be approximated by looking at the cashflow weighted average term of the fixed income asset and multiplying this by the difference in yield between the asset and a government bond in pounds (multiplying this difference by the amount invested) – this gives us "Duration x Spread" or DTS. Combining these concepts determines the main goal of CDI, which is to secure sufficient DTS above government bonds to meet all liability cashflow payments.

## ASSESSING CDI ASSETS IN A DTS FRAMEWORK

The attractiveness of CDI assets thus depends on their average term characteristics and the excess yield 'spread' they offer above gilts (after a prudent allowance for defaults), which are shown in Figure 7 below. We can broadly divide them into two maturity categories. The right-hand box covers the longer-dated opportunities, while the left-hand box groups the shorter-dated opportunities. We discuss these categories in more detail on the next page.

**FIGURE 7: EXAMPLES OF ASSETS AVAILABLE FOR BUILDING CDI SOLUTIONS**




## THE LONGER-DATED OPPORTUNITIES

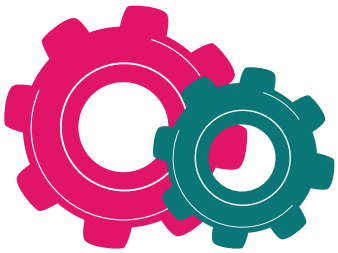
Long-dated assets offering a secure income and capital redemption or amortising stream of inflation-linked cashflows are the perfect CDI asset. This is because they make a significant contribution to the overall spread and also reduce the amount of LDI hedging required. A range of these assets have emerged in recent years, some examples of which are shown below.


Very long duration super senior rental income, often with some inflation linkage

Debt supported by highly secure income (often government backed) from completed infrastructure projects

Essentialy mortgage financing of Social Housing accomodation with rental income backed by government payment support

There are many other similar types of asset available to pension schemes. However, attractive assets with secure, long-dated inflation-linked income have seen significant demand, not only from UK pension schemes but from global pension schemes, wealth funds and particularly large insurance companies seeking to match annuity liabilities. Therefore, whilst these assets can form part of a CDI strategy, it could be more challenging to source large allocations at attractive net spreads above government bonds.




The "bedrock" of CDI strategies

In light of this, global long-dated investment grade credit has tended to form the largest allocation of the longer-dated assets described above as the bedrock asset for most CDI strategies. Investment-grade credit provides significant certainty of outcome (i.e. relatively low and stable default risk compared with higher-yielding credit strategies). Furthermore, sourced globally, the market capacity of this asset class is significantly higher than that of the longer-dated alternatives discussed above.

In the UK, there is a relatively small pool of issuers of maturities over 15 years. Most UK pension schemes seeking to use long-dated investment grade credit as part of a CDI strategy will thus require a significant allocation to non-sterling, particularly dollar-denominated, bonds. This creates a currency problem for a CDI strategy targeting sterling cashflows. However, the task of hedging cashflows back into sterling can be outsourced to the investment manager, who is able to select and manage the required derivative instruments to transform the overseas cashflows into the sterling cashflows required for a UK pension scheme. Therefore, in selecting appropriate 'buy and maintain' investment-grade credit managers, it is important to ensure they have the derivative management skills required to successfully manage the strategy. Furthermore, to optimise the collateral management process necessary for using derivatives, there may be advantages to combining the role with that of the LDI manager who is undertaking other aspects of the hedging programme.

## SHORTER-DATED, HIGHER-YIELDING ASSETS

A range of contractual cashflow assets can be considered for this shorter-duration role, including:

**HIGH YIELD**

A debt security that is rated below investment grade. These securities tend to have a higher risk of default or other credit event and in turn pay higher interest payments in order to compensate investors for the additional risk of investing.

**ASSET-BACKED SECURITIES**

Debt securities, where the bondholder has the right to a particular asset should the borrower be unable to make debt repayments. The range of assets available is wide ranging, including domestic mortgages, student loans and credit card debts.

**DIRECT LENDING**

Direct, floating debt finance to companies that do not typically have public credit ratings.

**INSURANCE-LINKED SECURITIES**

Investments in insurance risk that closely resemble reinsurance e.g. the mortality risk arising from pandemics.

**REAL ESTATE DEBT**

Loans secured against a property and its underlying income stream.

In order to fulfil a true contractual cashflow role, the initial yield on these assets at inception needs to be secured subject to a prudent allowance for defaults without exposure to reinvestment risk. Such security is relatively commonplace in most of the assets above, especially direct lending assets and real estate debt, which are typically bought and held to maturity.

However, obtaining the required level of comfort is less straightforward in assets such as high yield. These are typically actively managed on an 'evergreen' open-ended basis, with relatively high turnover and reinvestment in benchmark maturities, rather than a focus on rolling down the maturity of the portfolio over time. Thus, while traditional 'buy and maintain' management may not be appropriate for assets such as high yield, some modification of it will be required to ensure that the initial yield secured at inception is realised right up to the maturity of the bonds.

# 6 WHY NOW?

## THE APPEAL OF CDI HAS INCREASED SINCE THE FINANCIAL CRISIS AS THE UNIVERSE OF CDI ASSETS AVAILABLE TO PENSION SCHEMES HAS EXPANDED SIGNIFICANTLY. AS A RESULT OF NEW STRICTER REGULATION, BANKS – WHICH NATURALLY LEND ON A CONTRACTUAL BASIS – HAVE WITHDEAWN THEIR LENDING FROM A RANGE OF AREAS WHERE THEY PREVIOUSLY PROVIDED SIGNIFICANT FINANCE.

This has in turn created both increased opportunities for non-bank private lending by pension schemes and increased issuance in public debt markets. Some of these credit opportunities offer potential for a higher return and, alongside the wider range of assets to choose from, they make CDI an increasingly attractive and well-diversified strategy.

The relatively low governance that a 'buy and maintain' CDI portfolio requires also makes it appealing to some pension schemes.

### WHO SHOULD USE CDI?

As a rule of thumb, we estimate that a full CDI strategy can be implemented once a pension scheme is around 90% funded, if the liabilities are valued using a gilt discount rate. This is because a pension scheme needs to be sufficiently well funded such that the yield on a suitably diversified portfolio of credit and government bond assets will provide enough return for all the liability cashflows to be met, while allocating a proportion of the assets to an LDI portfolio, to fulfil the roles described earlier.

For some pension schemes with poorer funding levels, a CDI portfolio may not be able to deliver sufficiently high returns, and therefore other strategies such as a well-diversified return-seeking portfolio maybe more appropriate. However, if a pension scheme is unable or reluctant to move to a CDI portfolio immediately, it may still be possible to implement some aspects and gradually move towards a full CDI portfolio over time.

Further, if a pension scheme is very mature, and mainly has pensioner members, this means the liabilities are shorter dated, in contrast to pension schemes with many younger members whose liabilities are longer term. As previously mentioned, CDI assets are only available at maturities which can cover the short- and medium-dated pension liabilities. Therefore, the shorter the date of a pension scheme's liabilities, the larger the proportion of the cashflows that can be met by higher-returning CDI assets. As a result, CDI has most appeal for more mature, better-funded pension schemes, which will more easily be able to generate higher overall returns across their full cashflow profile.

**CDI HAS MOST APPEAL FOR MORE MATURE, BETTER-FUNDED PENSION SCHEMES**

### SMALL VS. LARGE PENSION SCHEMES

Initially it was only larger pension schemes that were able to implement CDI using bespoke, segregated portfolios. However, most of the key elements of these strategies can now be captured through the use of pooled vehicles designed to meet the demand for CDI. Specifically:

- Long-dated global investment-grade bond funds are now available which are not only managed on a 'buy and maintain' basis, but are managed to target a specific set of benchmark cashflows.
- Pooled LDI funds are already well established and can be used to provide a very good overall hedge for interest rate and inflation exposures.
- Many other long- and short-dated fixed income assets are already available through vehicles which are accessible to smaller pension schemes.

Combining these pooled funds means a CDI solution is now available for smaller pension schemes.

# 7 MONITORING CDI

The objective of a CDI strategy is to ensure that the investment portfolio can pay all of the liabilities of the scheme as they fall due and that the scheme doesn't have a shortfall when all the pensions have been paid. The best way of assessing if a CDI solution is meeting this objective is to measure how much money a scheme is predicted to have left once the investment strategy has matured and the liabilities have been paid. The objective for a CDI strategy is to have some money left over when the liabilities have been paid, to ensure there is no shortfall from the assets.

Hence to assess the ongoing success of a CDI strategy the best approach is to predict how much money will be left at the maturity of the scheme, or if a deficit is predicted. This projected residual amount can be monitored as the CDI solution matures and any changes in the amount will demonstrate the predicted success or not of the overall solution.

Thinking about CDI this way creates a natural objective for the strategy: it would be successful if the projected value remaining is positive after the final projected pension payment is made.

This also provides a measure for success that can be monitored on a regular basis: for example, a successful quarter is where the projection of the account surplus had improved over the period (as shown in the example in Figure 8, below).

**FIGURE 8: A PENSION SCHEME ONLY INVESTED IN GOVERNMENT BONDS THROUGH LDI**

| | VALUE AT PREVIOUS QUARTER END | VALUE AT CURRENT QUARTER END | CHANGE |
|---|---|---|---|
| Total assets | £80m | £85m | +£5m |
| CDI surplus/defecit | £1.00 m | £1.02 m | +£24k |
| Effective spread over gilts | 0.49% p.a. | 0.48% p.a. | (0.01%) |

The present value of cash remaining after the final pension payment is made is £1.02m

The scheme is fully funded on a Gilts + 0.48% discount rate

The CDI surplus improved by £24,000 due to fewer defaults than expected over the quarter

## EVOLUTION OF THE STRATEGY

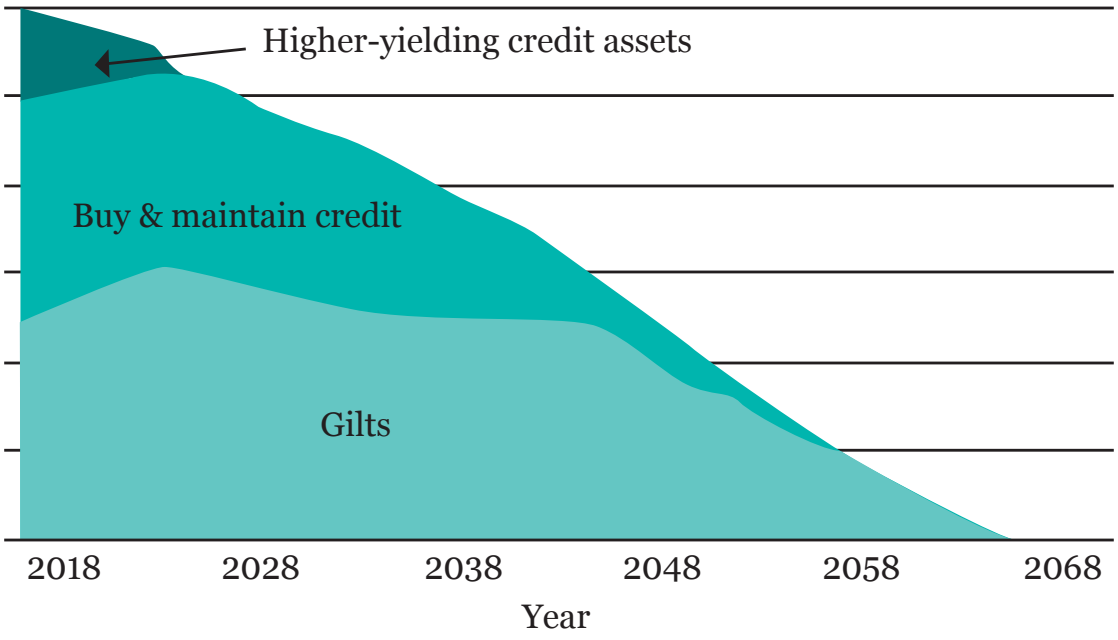
Given a CDI portfolio will likely match longer-dated liabilities with government bonds and use corporate bonds to match shorter-dated liabilities, it will naturally evolve into a low-risk portfolio of government bonds, without the need to rebalance. Further, as this portfolio of government bonds will fully match the liabilities, the pension scheme would at this point be fully funded if the liabilities are valued using a government bond discount rate. This would give the pension scheme the option to negotiate a buy-out with an insurance company, depending on pricing at the time.

Such an approach should generate greater returns earlier on and have a lower-risk investment strategy at a later stage. It is also consistent with the fact that it is normally easier to gauge the strength of a sponsor's covenant now than in the future. All other things being equal, this allows greater risks to be taken in the short term. By the same token, because pension schemes typically have a murkier view of the likely strength of the covenant in 10 or 20 years' time, it would be more prudent for them to be holding a lower-risk portfolio at that time.

An example of the evolution of a CDI portfolio which holds government bonds, a 'buy and maintain' portfolio of investment-grade credit and a range of higher-yielding short- dated credit assets managed in roll-down format, is shown in Figure 9 below.

The diagram highlights that a CDI strategy is not inconsistent with a longer-term plan to buy out the liabilities with an insurance company, particularly if the strategy is tilted towards holding higher-yielding credit assets in the earlier years. As the higher-yield assets run off and mature they not only boost the overall funding position but, as shown in Figure 9 below, they result in the remaining assets matching the liabilities with a majority of gilts plus a declining minority allocation to investment grade corporate bonds. With the proportion of pension liabilities increasing inevitably over time, it should become increasingly feasible to use these remaining assets to secure a buy-out of the liabilities.

**FIGURE 9: EVOLVING ASSET ALLOCATION**



## MANAGING AND REPORTING

Pension schemes should also consider the practical issues associated with the inevitable need for their portfolios to be recalibrated from time to time on both the asset and liability side. The discrepancies that could require this can be divided into three types.

1. **DEPARTURES FROM ASSUMPTIONS**
2. **CHANGES IN FORWARD-LOOKING ASSUMPTIONS**
3. **IMPLEMENTATION SLIPPAGE**

## DEPARTURES FROM ASSUMPTIONS

The most common departure from assumptions on the liability side involves differences between demographic assumptions (mortality, date of retirement etc.) and actual experience. On the asset side, differences may occur between assumptions and the experience of defaults and recoveries in credit portfolios. If actual experience is better than expected then the pension scheme will generate a surplus. However, if experience is worse it could have a deficit.

Transfer values could also impact the liabilities as they represent the acceleration of budgeted payments. If the basis of calculation is consistent with the CDI investment policy, then the transfer value should be the value of the bonds that theoretically need to be sold to meet the transfer payment. There are, however, some nuances to consider such as making an allowance for transaction costs and any delays between making the transfer value offer to the member, making the payment and then adjusting the portfolio.

In normal circumstances these factors are not particularly significant and, in particular, if transfer values are spread over a lengthy period the impact of delays in adjusting the exposures should broadly average out. Large one-off transfer values do, however, present more significant issues. While implementation of a CDI approach does not preclude pension schemes undertaking such exercises, careful integration of asset sales and exposure adjustments is required.

## CHANGES IN FORWARD-LOOKING ASSUMPTIONS

Changes in the assumptions on the liabilities tend to have a significant impact because they extend over several years. The most obvious assumption is pensioner longevity and if there is increased longevity, this will generate a projected shortfall unless additional prudent reserves are built up against such changes from the outset.

There is, however, no easy solution to such problems, however, it can be argued that CDI strategies using contractual cashflow assets, to target a small excess return, provide more certainty that a reserve will be built up over time than if using traditional growth assets.

## IMPLEMENTATION SLIPPAGE

Finally, any CDI strategy will inevitably incur some implementation gain or shortfall arising from the practical execution of the strategy. This slippage could arise, for example:

- From the way the inflation hedge is implemented
- From any currency hedge used for non-sterling bonds; or
- From interest rate exposure beyond the term of available bonds

High-quality CDI reporting should identify these items and attribute gains or losses in the projected cashflow match to the component terms. This means their significance can be monitored and changes made to the approach if required.

# 8 CONCLUSION

## CDI INVOLVES ESTABLISHING A PORTFOLIO OF BONDS WHICH, IF HELD TO REDEMPTION, IS PROJECTED TO MEET ALL OF A PENSION SCHEME'S LIABILITY CASHFLOWS AS THEY FALL DUE AFTER MAKING PRUDENT ALLOWANCE FOR DEFAULTS.

A successful CDI strategy offers pension schemes a far higher probability of meeting the liabilities than a typical 'growth plus matching' strategy. This is achieved by constructing a portfolio of bonds that, if held to maturity, will secure sufficient funds to meet the liability cashflows without any reinvestment or disinvestment risk. In exchange, the pension scheme must be ready to forgo any significant upside, which means CDI is most suitable for mature, well-funded pension schemes that can be confident that the limited returns from CDI assets will meet their liabilities.

CDI is not an alternative to LDI and, indeed, CDI solutions should be integrated with traditional LDI for a complete solution.

A CDI solution should be relatively low maintenance, evolving into a low-risk solution that relies on government bonds to match liabilities without the need for complex rebalancing triggers. However, there are complexities in the detail of how LDI and CDI solutions are managed, meaning that monitoring and reporting of the strategy is vital to ensure it continues to do what it says on the tin.

Recent developments in asset management products mean that CDI is now available for schemes of all sizes. Given the benefits of a CDI solution to a mature, well-funded pension scheme, it is a topic that should be on the agenda of many trustee groups, if not now, then at some point in the near future.

### QUESTIONS TO ASK IF YOU ARE CONSIDERING A CDI STRATEGY

1. What investment return does the scheme need to meet all future liabilities after allowing for any sponsor contributions?
2. Is buy-out the ultimate objective and if so, what does this mean for the overall target return and evolution of the strategy?
3. Which type of credit assets is the scheme comfortable using, e.g. private credit?
4. Can the return target be achieved through a diversified portfolio of these credit assets managed on a 'roll-down' basis with limited reinvestment risk?
5. What are the potential liquidity requirements of the scheme, including potential collateral requirements and the impact of any transfers out of the scheme?
6. Is the strategy consistent with sponsor covenant in terms of amount and type of risk taken e.g. should the solution exclude certain corporate bonds that are correlated with the sponsor's business?
7. How will the scheme actuary treat the CDI assets and liability valuation?

# 9 GLOSSARY

### AMORTISING FUND (OR 'ROLLDOWN FUND')

A fund which distributes income and redemption proceeds of the bonds in the funds as opposed to automatically reinvesting into other bonds.

### BUY AND MAINTAIN

A 'buy and maintain' investment strategy is similar to a traditional 'buy and hold' investment strategy, where the investor purchases a high-quality credit security from a financially strong issuer with the intention of holding it to maturity. The difference with a 'buy and maintain' strategy is that the securities are actively monitored throughout their life to ensure they continue to meet the desired characteristics of the target investment portfolio. If a bond's credit quality begins to deteriorate and perhaps a default looks likely, the portfolio manager can decide whether to keep the bond or replace it with a higher-quality bond of a similar yield and maturity.

### BUY OUT

Transfer of all of the liability obligations of a pension scheme to an insurance company in return for the payment of a premium.

### CASHFLOW-MATCH

Cashflow-matching is a method of hedging cashflows by matching cash outflows (e.g. pension liabilities) with cash inflows.

### CONTRACTUAL CASHFLOWS

Where there is a legal obligation by a borrower of debt to make one or more defined payments at specific dates.

### COLLATERALISATION

When investing in swaps (and some other LDI assets) a pension scheme is entering into an agreement with an investment bank 'over the counter' – i.e. entering into an agreement directly with the bank and specific to the particular contract being arranged.

A swap has zero value at the outset of the contract. As market conditions change the swap becomes an asset to one counterparty and a liability to the other, i.e. the swap has a value. The value of the swap at any point in time is known as the 'mark-to-market' value. Given that swap contracts are generally long term in nature, pension schemes rely on the investment bank being in business at the end of the contract.

To mitigate the risk that the bank becomes unable to meet its obligations under the agreement, swap contracts are 'collateralised'. This involves the transfer of assets (i.e. collateral) between the two parties with the same mark-to-market value as the swap. In the event of default the party in profit keeps the collateral and retains the benefit accrued on the contract up to that point.

### DEFICIT

The shortfall between a pension scheme's assets and the present value of its liabilities.

### DISCOUNT RATE

Used by the actuary to place a present value on a DB pension scheme's liabilities. For example, if a payment of £100 is due in one year's time, then using a discount rate of 5% gives a present value of £100 ÷ (1+5%) = £95.24. The lower the discount rate, the higher the liabilities.

### DURATION

Expressed in years, duration is in this context the weighted average time to payment of a pension scheme's cashflows or an asset's cashflow, once these have been discounted. Duration can also be a measure of how much a scheme's liabilities, or LDI assets (see next page), move in relation to changes in interest rates or expected inflation. It is equivalent to the percentage change in value for each 1% change in interest rates or expected inflation. A higher duration indicates a greater sensitivity to changes in interest rates or expected inflation.

### EMPLOYER COVENANT

The financial strength of the employer standing behind the pension scheme. A weak sponsor is a concern for trustees as the sponsor may not be able to afford the contributions required to fund the pension scheme.

### EVERGREEN

Evergreen refers to a continuous credit investment that has no maturity date. In practice, this refers to a short-term loan or bond which is continuously renewed so that the principal remains outstanding for the long term.

### INFLATION LINKAGE

Inflation linkage refers to a payment that is dependent on the level of realised inflation. For example, DB pension schemes may have made some promises to members where the payments are indexed to inflation, e.g. some members' pension payments may change in line with inflation year on year.

### INTEREST RATES

The most relevant interest rates for pension schemes are those on long-dated government bonds or long-dated interest rate swaps, given the equally long-term nature of pension scheme liabilities. These are a key component of the pension scheme's discount rate . The nominal interest rate represents the interest rate on fixed-interest gilts and can be used to value pension liabilities that are fixed in nature. The real interest rate reflects the rate earned on inflation-linked investments over and above expected inflation. The real interest rate can be used to value inflation-linked liabilities.

### LIABILITY-DRIVEN INVESTMENT (LDI)

The ultimate objective of pension scheme investing is to ensure that there are sufficient funds to pay the liabilities. LDI puts this objective at the heart of a pension scheme's investment strategy. A key aim of LDI is to manage funding level risk (i.e. the variability of the pension scheme's assets compared to its liabilities). This usually means using a range of assets, such as swaps and gilts, to construct an investment strategy that closely matches the behaviour of the pension liabilities. These assets are often referred to as 'LDI assets' or matching assets.

### LONGEVITY RISK

The risk that a pension scheme has to make extra pension payments as a result of the increasing life expectancy of its pensioners. Longevity risk could result in payments being made for longer than originally either expected or accounted for, and is something to which DB pension schemes are particularly exposed.

### MATURITY

Maturity is the date on which the life of a transaction or financial instrument ends, after which it must either be renewed or it will cease to exist. For example, a bond which has been issued for 10 years is said to have a maturity of 10 years.

### REINVESTMENT RISK

This refers to the risk that the principal from maturing investments will have to be reinvested at a lower rate than the original investment.

### REPURCHASE AGREEMENTS ('REPO')

A contract with a counterparty (usually a bank) whereby a gilt is sold at current market value under an agreement to buy back the same gilt from the counterparty for a fixed agreed price at an agreed future date. The seller of the gilt thus retains economic exposure to the gilt while releasing cash for investment elsewhere.

### SWAP

A contract between two parties, e.g. a pension scheme and a bank, to exchange a series of future cashflows according to a previously agreed arrangement. LDI strategies may use swaps as an efficient way to gain the benefits of interest rates, inflation expectations, or gilt returns.

### TECHNICAL PROVISIONS

The statutory measure used to review the pension scheme's liabilities every three years as part of the triennial actuarial valuation. It is also usually used to calculate the pension scheme's funding level .

### TRANSFER VALUE

A transfer value is the amount of money your pension scheme would pay to another pension arrangement in lieu of the benefits you have built up in the scheme, if you decided to transfer your pension from that scheme.

### YIELD DIFFERENTIAL (OR 'SPREAD')

Otherwise known as 'spread', this refers to the difference in yield between two securities. This term is often used to describe the increase in yield between a credit asset and a government bond. For example, if a corporate bond has a yield of 3% while a government bond has a yield of 2%, this would result in a yield differential of 1%. In this example, this could also be referred to as the 'credit spread'.

# NOTES

**Pensions and Lifetime Savings Association**
24 Chiswell Street
London EC1Y 4TY

T: 020 7601 1700
E: plsa@plsa.co.uk

**www.plsa.co.uk**

*October 2019*