



Banc Ceannais na hÉireann
Central Bank of Ireland

Eurosystem

The Central Bank's macroprudential policy framework for Irish- authorised GBP-denominated LDI funds

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Executive summary

The 2022 gilt (i.e. UK government bond) market crisis highlighted vulnerabilities amongst GBP-denominated liability driven investment (LDI) strategies that pose a risk to financial stability. The levels of leverage employed by GBP-denominated LDI funds, coupled with the scale and the pace of the increase in yields following the UK government's 'mini-budget announcement' forced these funds to sell gilts at a moment of market illiquidity. Such fire sales by GBP-denominated LDI funds amplified the initial shock, driving yields higher. To stop this self-reinforcing dynamic, the Bank of England undertook a temporary and targeted intervention in the gilt market, which afforded LDI funds more time to reduce their leverage in an orderly manner.

Recognising the significance of Irish-authorised GBP-denominated LDI funds in the GBP LDI sector, in November 2022, the Central Bank of Ireland (hereafter 'the Central Bank') outlined supervisory expectations for GBP-denominated LDI funds to maintain an improved level of resilience, via an industry letter. This letter was introduced in coordination with the Commission de Surveillance du Secteur Financier (CSSF), Luxembourg's National Competent Authority (NCA), after interaction with the European Securities and Markets Authority (ESMA). The letter outlined that GBP-denominated LDI funds were expected to maintain the enhanced level of resilience observed at the time, which was resilience to a 300-400 basis point increase in yields (referred to as a 'yield buffer').¹

In order to make this cohort of funds more resilient to shocks to UK interest rates, in November 2023, the Central Bank consulted on a proposal to codify and, in certain cases, augment the existing yield buffer measure via the use of Article 25 of the Alternative Investment Fund Managers Directive (AIFMD). This Framework Document outlines a policy measure to strengthen the steady-state resilience of Irish-authorised GBP-denominated LDI funds. The Framework Document follows the publication of a consultation paper – "Macroprudential measures for GBP Liability Driven Investment funds" (referred to as CP157) – in November 2023 that outlined proposals for a codification of the yield buffer. A summary of the main elements of the macroprudential framework for this cohort of funds is outlined in Table 1 below. The final macroprudential framework for Irish-authorised GBP-denominated LDI funds takes account of the feedback received during the consultation process to CP157 which closed on 18 January 2024.

As described in the consultation paper, the Central Bank will provide a three-month implementation period to allow existing GBP-denominated LDI funds to comply with the measures and the new reporting template. The minimum yield buffer requirement is a codification of limits already in place. However, as there are augmentations to what was first

¹ The yield buffer is defined as the level of increase in yields that a fund can withstand before its net asset value (NAV) turns negative.

outlined as supervisory expectations in the industry letter in November 2022, Irish-authorised GBP-denominated LDI funds might require time to implement these changes. For this reason, existing funds in scope of the measures will have three months to be compliant with the yield buffer requirement and prepare to report the data according to the new data return template. Newly-authorised funds are expected to be compliant from inception.

Given the cross-border nature of GBP-denominated LDI funds, the Central Bank have sought to ensure international coordination in codifying these measures. To this end, CP157 represented an aligned public consultation with the Commission de Surveillance du Secteur Financier (CSSF) in Luxembourg who also published a similar consultation paper and final framework on LDI funds. Given the international nature of these funds, such coordination is important to ensure the effectiveness of these measures.

Table 1: Summary of macroprudential policy measures for Irish-authorised GBP-denominated LDI funds.

Item	Description
Yield buffer level	Irish-authorised GBP-denominated LDI funds must maintain resilience to a minimum of 300 bps increase in UK yields.
Scope of yield buffer	The yield buffer applies to Irish-authorised GBP-denominated LDI funds only, and to all such funds equally.
Definition of GBP-denominated LDI funds	The population of Irish-authorised GBP-denominated LDI funds that the codification applies to is identified from their investment strategy. The definition is the following: <i>“Any fund whose investment strategy seeks to match the sensitivity of their assets to UK interest rates or inflation to that of their investors’ pre-defined liabilities.”</i> Additional guidance is available in the relevant section and in the annex.
Yield buffer composition	<p>Only assets on the fund’s balance sheet are included in the calculation of the yield buffer, and not assets its investors own (but the fund is authorised to use). All funds’ exposures are considered in calculating the yield buffer.</p> <p>Where assets are not sensitive to UK rates, funds should appropriately consider and manage these assets if they are to be included in the yield buffer calculation. This requires regular assessments of the fund’s resilience to simultaneous shocks to UK rate sensitive and non-UK rate sensitive segments of its portfolio. Furthermore, it is expected that non-UK rate sensitive assets should only form a limited part of the yield buffer calculation.</p>

Yield buffer liquidity	Funds should ensure that the yield buffer calculation consists of assets which are eligible to meet margin or collateral calls that result from adverse market circumstances, or assets that can be transformed into such eligible assets with requisite speed under normal and stressed market conditions. For an asset to be considered transformable with requisite speed, the period of time it takes to transform it into eligible collateral should align with the settlement period of a fund's leverage. Such assets should only account for a limited part of the total yield buffer and fund managers should exercise a prudent approach to the inclusion of such assets in the yield buffer calculation.
Reporting	Monthly averages of daily yield buffer and monthly minimum will be reported at month-end. The yield buffer in each reporting observation should be greater than or equal to 300 bps, subject to the buffer usability feature outlined below.
Yield buffer usability	In order to provide limited flexibility to facilitate buffer usability, looking back over the last four reporting observations, one of the reporting observations can be below 300 bps in exceptional circumstances.
Yield buffer dis-application	The Central Bank may temporarily dis-apply the yield buffer requirement should there be a significant, market-wide shock to financial stability. This would ultimately be a judgement, based on market intelligence, firm engagement and external indicators.
Notification to the Central Bank of Ireland	If funds in scope of the measure anticipate substantive and/or prolonged deviations below 300 bps, they must notify the Central Bank. Availing of the yield buffer usability feature does not constitute a prolonged deviation, therefore it does not require notification to the Central Bank. Fund managers are required to only notify the Central Bank that their yield buffer has fallen below 300 bps in <i>real time</i> if they expect the deviation to be prolonged and/or substantial.

1. Introduction

The sudden increase in UK government bond (henceforth “gilt”) yields in September 2022 triggered by the UK “mini-budget” demonstrated that LDI funds can pose a risk to financial stability. As LDI funds were using significant amounts of leverage (repurchase agreements and interest rate swaps) the increase in yields led to sudden, substantial requests for additional collateral for LDI funds to maintain their leveraged positions. Where LDI funds were concerned about not being able to meet these requests, they responded by fire selling gilts to wind-down their leverage, further amplifying stress in the gilt market.

A significant cohort of GBP-denominated LDI funds are authorised in Ireland. Irish-authorised LDI funds account for at least 20 per cent of the total GBP-denominated LDI industry. With respect to pooled funds (i.e. funds with more than one investor), which were particularly vulnerable to the shock, Irish-authorised funds represent approximately 60 per cent of the total pooled GBP-denominated LDI fund assets. Irish-authorised GBP-denominated LDI funds own a significant share of UK gilts – around 10 per cent of the outstanding stock at end-August 2022. The significance of this market share held by Irish-authorised LDI funds was evident during the gilt market crisis, where Irish-authorised funds accounted for approximately 30 per cent of net gilt sales by LDI funds and their investors.

Recognising the significance of Irish-authorised GBP-denominated LDI funds, the Central Bank outlined, via an industry letter in November 2022, supervisory expectations that GBP-denominated LDI funds maintain an improved level of resilience. The letter outlined expectations that funds maintained resilience to a 300-400 basis point (bps) increase in yields (i.e. “a yield buffer”). This was introduced in coordination with the Commission de Surveillance du Secteur Financier (CSSF, Luxembourg’s National Competent Authority (NCA)), after interaction with the European Securities and Markets Authority (ESMA).

In order to guard against this sector posing a risk to financial stability in future, the Central Bank is codifying, and in certain cases augmenting, the existing yield buffer expectation. The yield buffer is codified in conjunction with the CSSF, with whom the Central Bank have undertaken an aligned public consultation given the cross-border nature of this cohort of funds. Similar to Ireland, Luxembourg also hosts a significant share of GBP-denominated LDI funds and alternative investment fund managers (AIFMs).² The

² The CSSF published its consultation paper “Consultation on macroprudential measures for GBP Liability Driven investment Funds” on 23 November 2023 alongside the Central Bank.

final policy measures for Irish-authorised GBP-denominated LDI funds takes account of the feedback received from the aligned public consultation (CP157) that closed on 18 January 2024.³

This is the second time the Central Bank has introduced macroprudential policy measures under the non-bank pillar of the Central Bank's macroprudential policy framework. It follows previous macroprudential policy measures that sought to limit leverage and reduce liquidity mismatch for Irish-authorised property funds.⁴ It also aligns with the principles and key objectives outlined in the Central Bank of Ireland's Discussion Paper "[An approach to macroprudential policy for investment funds](#)" (DP11).

As financial stability is a global public good, the Central Bank is committed to playing its part in maintaining financial stability at an international level. Ireland is one of the largest domiciles for investment funds, regionally and globally, with a significant share of the GBP denominated LDI industry accounted for by Irish-authorised funds. Given this, and the collective impact GBP-denominated LDI funds had on financial stability, the Central Bank considers it has a particular responsibility to assess policy and supervisory actions to enhance the resilience of the GBP-denominated LDI funds sector to help maintain financial stability internationally.

This framework has sought to ensure international coordination to safeguard the effectiveness of the measures. GBP-denominated LDI funds are domiciled in different jurisdictions in the EU, and there are a cohort of GBP denominated LDI funds managed on a cross-border basis. International coordination, including information sharing, should ensure that the introduction of these measures does not lead to risks being shifted between jurisdictions. This is in keeping with the Central Bank's views outlined in DP11, which recognises the importance of international coordination in operationalising a macroprudential framework for investment funds more generally.

2. Rationale and objectives

The unexpected and significant increase in gilt yields in September 2022 was exacerbated by the sales of gilts by LDI funds. Through their investments in gilts and their use of derivatives (primarily interest rate swaps) and repurchase agreements (repos), LDI funds experienced shocks of varying intensity to the value of their assets (and, through that, the value of investors' equity). These sharp increases in yields forced LDI funds to reduce leverage through a combination of requesting additional capital from investors and selling

³ [Consultation Paper 157: "Macroprudential measures for GBP Liability Driven Investment funds"](#)

⁴ For a more detailed description of the property funds' measure, please see "[The Central Bank's macroprudential policy framework for Irish property funds](#)"

assets. As noted in the previous section, Irish-authorised GBP-denominated LDI funds accounted for a substantial portion of all gilt sales by LDI funds over this period.

Given the close connections between the Irish and UK economies, the Irish economy and financial system would be particularly exposed should a financial stability event occur in the UK. In the absence of the Bank of England's intervention, it is likely that many LDI funds would have defaulted on collateral or margin calls for their repo and derivative positions. In turn, this could have led to broader stress in the UK financial sector. Due to the strong financial sector and real economy links between Ireland and the UK, this would have had implications for the macro-financial environment in Ireland.

Recognising the significance of Irish-authorised GBP-denominated LDI funds, the Central Bank is codifying the existing yield buffer using Article 25 of the AIFMD. The supervisory expectation of maintaining a yield buffer around 300-400 bps minimum led to an improvement in the resilience of the cohort of funds in scope. The Central Bank is now formalising the initial response to the crisis by codifying, and in certain cases augmenting, the existing supervisory expectation. This should ensure that this enhanced level of resilience is maintained in the long-term.

The Central Bank's objective in codifying the yield buffer is to safeguard the resilience of GBP-denominated LDI funds such that they do not amplify stress in the gilt market as they did over September-October 2022. LDI funds posed a risk to financial stability owing to their excessive use of leverage that forced them to sell gilts as a consequence of the UK government's 'mini-budget' announcement. The yield buffer aims to prevent such a situation reoccurring by restricting the amount of leverage that GBP-denominated LDI funds can employ.

The yield buffer places an upper limit on the amount of leverage that an LDI fund can employ, given the interest rate sensitivity (duration) of its portfolio. For a fund to have a yield buffer of at least 300 bps, it means its NAV must be at least as large as the decrease in portfolio value that would occur should yields rise by 300 bps. Therefore, given the duration of the fund and the size of its exposures, the yield buffer sets a maximum ratio between total exposures and NAV – the common expression of a leverage ratio.⁵

This policy is consistent with the Central Bank's broader priority to develop and operationalise the macroprudential framework for investment funds, working with international counterparts. As outlined in the Discussion Paper "An approach to macroprudential policy for investment funds", international engagement and coordination are key enablers for an effective macroprudential framework for funds, given the global and cross-border nature of the sector. In line with this principle, the Central Bank has

⁵ Equally, given the duration of a fund's portfolio and its NAV one can derive the maximum size its exposures can be, which provides the same leverage ratio.

worked closely with the CSSF, UK authorities, ESMA and relevant stakeholders since the beginning of the UK gilt market crisis in 2022. This joint effort has resulted in the coordinated publication with the CSSF of the November 2022 industry letter; an aligned public consultation on strengthening the steady state resilience of LDI funds, which was launched in November 2023; and which has led to the publication of this macroprudential framework for GBP-denominated LDI funds.⁶

3. Framework design

3.1. The yield buffer and yield buffer Level

The yield buffer is defined as the level of increase in UK yields that a fund can withstand before its net asset value (NAV) turns negative. This will require the calculation of portfolio duration and convexity (as weighted averages) to determine the impact a 300 bps increase in yields would have on the value of a fund's portfolio.⁷ This calculation should consider all exposures that a fund's portfolio contains.

Irish-authorised GBP-denominated LDI funds must maintain resilience to a minimum of a 300 bps increase in UK yields. This calibration is guided by a combination of analytical evidence and judgement and is consistent with the range of 300-400 bps as set out in the November 2022 letter by the Central Bank and with the level of resilience proposed in CP157.⁸ For GBP-denominated LDI funds that target real rate exposure, inflation expectations should be held constant so that the real interest rate is stressed appropriately. Inflation-focused LDI funds should maintain resilience to a 300 bps increases in nominal interest rates.

The 300 bps yield buffer level should be viewed as a minimum, rather than a target. The Central Bank anticipates that to avoid the yield buffer deviating below the minimum, Irish-authorised GBP-denominated LDI funds should consider maintaining their yield buffer above the 300 bps in order to manage idiosyncratic variations in the value of their portfolio. The Central Bank considers that maintaining a yield buffer above the minimum requirement would be prudent, particularly where operational challenges may prevent investors from being able to meet capital calls quickly (e.g. if a fund needs to co-ordinate amongst a large number of investors and believes it may be operationally challenging for some investors to meet capital calls in a stress situation, or if a fund has a recapitalisation process longer than a week) or funds have non-GBP LDI leveraged exposures in addition to

⁶ Link to the CSSF's framework document.

⁷ Managers may employ alternative methods of estimating interest rate sensitivity should they judge them to be more precise or more conservative (e.g. duration only, duration and other non-linearities such as higher order derivatives).

⁸ See "[Macroprudential measures for GBP Liability Driven Investment funds](#)" (CP157) for more detail.

their GBP LDI leveraged exposures (e.g. a fund has a total return swap on an equity index and gilt repo). Furthermore, funds should ensure that their investors are aware that they will need to meet capital calls in both normal and stressed market conditions.

3.2. Scope

The scope of the yield buffer is consistent with the expectation set out in the Central Bank letter to industry in November 2022 and the proposal in the public consultation (CP157) in November 2023. The yield buffer applies equally to all GBP-denominated LDI funds authorised in Ireland. At this point, the Central Bank judges that these funds can pose a systemic risk given their leverage and concentrated ownership position in the gilt market. Irish-authorised euro-denominated LDI funds do not pose the same risk to the European sovereign debt market as they hold a much smaller share of the overall market. Monitoring of euro-denominated LDI funds will form part of the Central Bank's annual Article 25 risk assessment submitted to ESMA, and if their systemic importance were to change, the Central Bank would review the application of the rules accordingly. The Central Bank has decided to apply the measures to Irish-authorised GBP-denominated LDI funds with non-Irish AIFMs under the relevant domestic funds legislation.

The population of GBP-denominated LDI funds that the codification applies to is identified from their investment strategy. A definition of LDI funds based on portfolio composition would likely be imprecise as other fund cohorts also combine sovereign bond holdings, repo and interest rate swaps, while not posing the same risk to financial markets. What differentiates LDI funds is how these instruments serve the funds' investment strategy, in particular they are used to hedge their investors' liabilities. Therefore, the definition includes:

“Any fund whose investment strategy seeks to match the sensitivity of their assets to UK interest rates or inflation to that of their investors' pre-defined liabilities.”

LDI funds typically gain exposure to UK interest rates and inflation through gilts and/or interest rate or inflation derivatives. What distinguishes LDI funds from other funds that combine such instruments is that they use them to provide an investment that hedges their investors' (typically, although not exclusively defined benefit pension funds) liabilities.

In assessing whether a fund's investment strategy is within the definition outlined above, funds should consider a broad range of information. For example, the investment objectives of a fund may be interpreted as not placing a fund within the definition. However, the basis on which the fund is marketed, the manager's understanding of their investors' investment objectives and other regulatory reporting may all make clear that the fund is in fact a GBP-denominated LDI fund. To assist managers to not inadvertently exclude GBP-denominated LDI funds, the Central Bank has provided a non-exhaustive list of alternative ways in which LDI investment strategies are described in the annex.

It is the responsibility of fund managers to determine whether GBP-denominated LDI funds they manage are in scope of the measures. If a fund manager is in doubt as to whether their fund is in scope, the Central Bank expects that fund managers adopt a prudent approach when making this determination. Funds which combine GBP-denominated LDI strategies and other strategies should be considered in scope.

New funds seeking authorisation as GBP-denominated LDI funds managed by an Irish AIFM, in line with the definition above, will be required to notify the Central Bank that they are in scope of the measures. It is the expectation that AIFMs of LDI funds will notify the Central Bank that they are in scope of the measures when they are seeking authorisation. The Central Bank may conduct thematic analysis on the in-scope population of funds, so managers will need to ensure that this is up-to-date for the Irish-authorised GBP-denominated LDI funds they manage. There are other instances where the Central Bank expects notification from GBP-denominated LDI funds that they are in scope: Irish-authorised GBP-denominated LDI funds captured by way of conditions of authorisation and existing AIFMs that begin to act as manager to GBP LDI funds.

3.3 Yield buffer composition – external assets

Assets owned by LDI funds' investors that the LDI fund is authorised to use will not form part of the yield buffer calculation. As outlined in the November 2022 industry letter and CP157, the yield buffer should exclude “any shared pool of assets or other capital of investors that the GBP LDI Fund may have access to”. The inclusion of assets external to the fund's balance sheet could form a potential contagion channel in times of stress. For example, if assets external to the fund are considered as part of the yield buffer, shocks to LDI fund portfolios will be rapidly transmitted to the assets that the LDI manager is authorised to use.

3.4 Yield buffer composition – liquidity guidance

GBP-denominated LDI funds should ensure that assets in the yield buffer are sufficiently liquid. Funds should ensure that the yield buffer calculation consists of assets that are eligible to meet margin or collateral calls that result from adverse market circumstances, or assets that can be transformed into such eligible assets with requisite speed under normal and stressed market conditions. For an asset to be considered transformable with requisite speed, the period of time it takes to transform it into eligible collateral should align with the settlement period of a fund's leverage. Such assets should account for a limited part of the total yield buffer and managers should exercise a prudent approach to the inclusion of such assets in the calculation of the yield buffer.

3.5 Yield buffer composition – treatment of non-rate, non-GBP assets

The treatment of assets whose sensitivity to UK interest rates is uncertain was raised in feedback to the public consultation (CP157). These assets may be less responsive to changes in UK interest rates than gilts.

Where assets are not sensitive to UK rates, the Central Bank judges that funds should appropriately consider and manage these assets if they are to be included in the yield buffer calculation. This requires regular assessments of the fund's resilience to simultaneous shocks to UK rate sensitive and non-UK rate sensitive segments of its portfolio. Furthermore, non-UK rate sensitive assets should only form a limited part of the yield buffer.

3.6 Yield buffer usability

A key objective in the design of the yield buffer is that it should be usable and should not lead to procyclical dynamics. It would be counterproductive if LDI funds were found to sell gilts in times of stress in order to meet the yield buffer. If this occurred, the replenishment of the yield buffer could replicate the forced sale dynamics observed in the gilt market crisis during a future stress, amplifying any initial shock.

To promote usability of the yield buffer, and as set out in CP157, the Central Bank is adjusting how the yield buffer is applied. Irish-authorised GBP-denominated LDI funds are required to calculate the monthly average of the yield buffer based on the yield buffer at the end of each business day of the month, at the end of each calendar month. The monthly average yield buffer would then need to be reported as a single observation to the Central Bank following each month-end and should be greater than or equal to 300 bps, subject to the usability feature outlined below. In order to provide limited flexibility to facilitate yield buffer usability, on a rolling basis over the last four reporting observations, one of the reporting observations may be below 300 bps in exceptional circumstances. The use of this flexibility will be monitored, with the expectation that it is not used on a regular basis.

The following example describes how the Central Bank envisions these elements combining. Consider a 5-month period. An Irish-authorised GBP-denominated LDI fund has been maintaining a monthly average yield buffer of 300 bps in each of months 1-3. In month 4 a shock increase in yields occurs. There are two ways with which the fund may be able to meet the minimum monthly average requirement of 300bps, i.e. selling gilts or recapitalising. However, if this is not feasible to recapitalise then the measure provides some limited flexibility that does not require the fund to deleverage procyclically to return to a 300 bps monthly average. Therefore, their monthly average yield buffer can remain below 300 bps in month 4. In month 5, it is expected that by the end of this month the monthly average yield buffer should have returned above 300 bps. If the yield buffer was

to not return above 300 bps in month 5, or if it had dipped below 300 bps in at least one of months 1-3 and month 4, then this would constitute a breach of the measures.

Additionally, and consistent with the Central Bank's approach to macroprudential policy for property funds, the Central Bank may temporarily dis-apply the yield buffer requirement should there be a significant, market-wide shock to financial stability. Disapplication of the yield buffer would be considered in the case of a severe market wide shock or event, where it is anticipated that it may take a substantial period for funds to return to the required levels of resilience and that forcing them to expedite this process would further amplify the shock. This would ultimately be a judgement, based on review of a range of data and external indicators, coupled with ongoing market intelligence and firm engagement.

3.7 Reporting and notification

Funds in scope are required to fill-in an updated LDI data template. Following the gilt market crisis, a data template was jointly introduced by the CSSF, the Central Bank and the Financial Conduct Authority (FCA) to monitor GBP LDI funds on a weekly basis. This template will be updated in light of the codification of the yield buffer measure and ESMA's advice. It will also move to monthly reporting and LDI funds will also have to report the monthly average of the yield buffer, the monthly minimum value as well as other data required for the ongoing monitoring of the measures. This will form part of the ongoing monitoring process by the Central Bank and will be used for ongoing supervisory engagement with relevant funds.

Consistent with other regulatory requirements, the yield buffer will be subject to regular monitoring by the Central Bank. The monitoring of the limit will be assessed based on the data template mentioned above. It will be the responsibility of funds to ensure that all reporting is accurate and that reported data are up to date ahead of the assessment deadline each month. Funds may be asked to resubmit data in the event that the Central Bank identifies errors in reported values.

Fund managers will only notify the Central Bank that their yield buffer has fallen below 300 bps in real time if they expect the deviation to be prolonged and/or substantial. The Central Bank has judged that providing a detailed definition of "prolonged and/or substantial" deviations from 300 bps may lead to potential threshold effects. Therefore, the Central Bank has not defined these deviations in this framework and instead it will closely monitor any deviations on an ongoing basis. Notifications from AIFMs of prolonged and/or substantial deviations and breaches of the measure should be reported promptly and without delay to the Central Bank. However, minor deviations of the yield buffer below the minimum 300 bps do not require to be reported in real time, thus providing LDI funds with

the incentive to re-build their yield buffers appropriately and without resorting to fire sales of gilts to immediately replenish them. Likewise, availing of the yield buffer usability does not constitute a prolonged deviation - rather it is making use of the rule as intended, and will be monitored in the monthly reporting template.

3.8 Implementation period

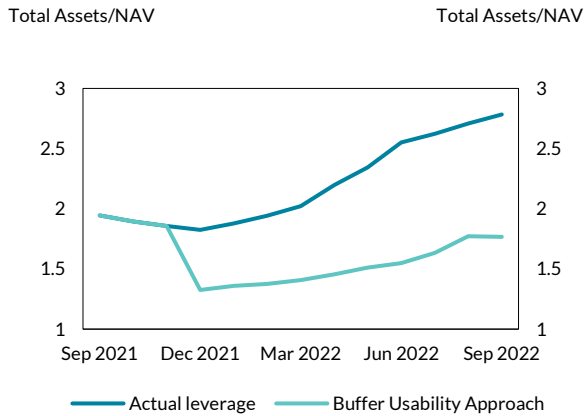
GBP-denominated LDI funds have three months to implement the measure. For the most part, this macroprudential measure is a codification of a supervisory expectation that industry is already complying with. However, in certain cases there are augmentations to the supervisory expectations outlined in the November 2022 letter that may require time to implement. Balancing these two considerations, the Central Bank provides a three-month implementation period. AIFMs should ensure that funds are in compliance by 29 July 2024.

4. Impact assessment

Counterfactual analysis by the Central Bank suggests that had the yield buffer been in place from December 2021, then leverage of LDI funds would have been substantially lower than it was in September 2022. Leverage employed by LDI funds began to increase following the start of the Bank of England interest rate hiking cycle in December 2021, as LDI funds did not seek sufficient recapitalisations or sell gilts to keep leverage constant. To assess how the introduction of the yield buffer would have made a difference to LDI fund leverage, it is assumed in this example that the yield buffer was introduced in December 2021. The adjustment to leverage funds that would have had to make to come into compliance is then calculated, as well as adjustments required to remain compliant with the rule. As can be seen in Chart 1, a yield buffer would lead leverage to be almost a third lower than what was observed during the sample period.

Chart 1: LDI fund leverage would have been significantly lower in the run up to the crisis if a yield buffer had been in place from December 2021

Counterfactual median leverage for GBP LDI funds if a yield buffer was introduced in December 2021

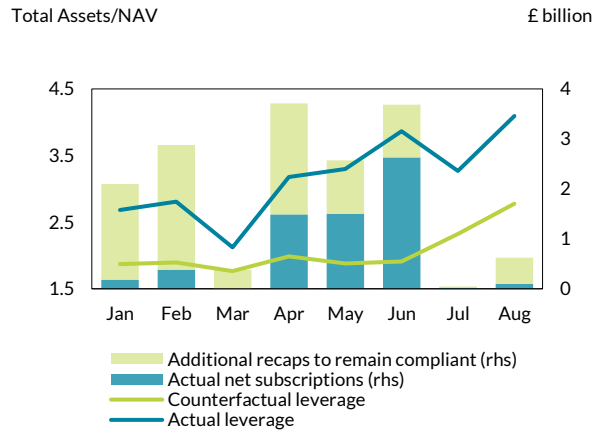


Source: Central Bank of Ireland calculations.

Notes: Buffer usability approach refers to a yield buffer requirement that allows for a deviation below 300 bps if the preceding 3 months have had values above 300 bps.

Chart 2: Maintaining the yield buffer from January-August would have required funds to raise an additional £10 billion in equity – with leverage lower and more stable as a consequence

Actual and counterfactual median leverage and net subscriptions for GBP LDI funds needing to recapitalise to remain compliant with yield buffer in counterfactual, Jan-Oct 2022



Source: Central Bank of Ireland calculations.

Notes: Funds included in chart limited to cohort who would need to recapitalise over Jan-August 2022 to remain compliant with buffer. Therefore, the sample is different to that in Chart 1, and as a consequence leverage also differs.

This lower level of leverage is achieved in part by encouraging funds to recapitalise by more than they otherwise would have. Under the assumption that all funds are compliant with the 300 bps yield buffer at end 2021 and experience the same movement in their yield buffer over January – August, a cohort of funds needing to recapitalise to remain compliant with the yield buffer usability approach can be identified and the volume of recapitalisations required can be quantified. In doing so, it is shown that if the yield buffer had been in place this cohort would have raised an additional £10 billion in equity from investors. In turn, this would have led their counterfactual leverage to be lower, relative to their actual leverage (see Chart 2).

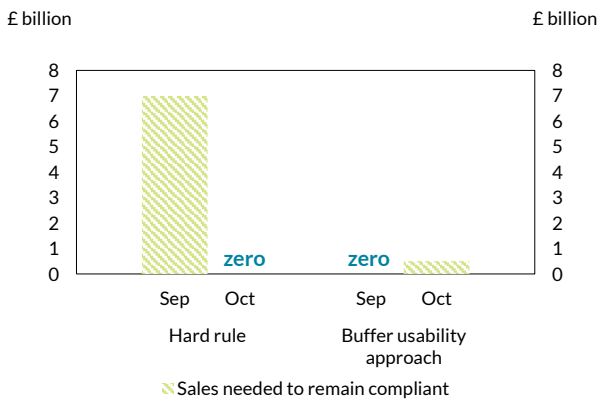
The application of the yield buffer with the buffer usability approach would not have resulted in significant procyclical gilt sales by funds. Consider a counterfactual where all funds maintained a 300 bps minimum yield buffer from June to August.⁹ To determine whether the buffer usability approach would require procyclical gilt sales over October, the change in their actual yield buffer over August-October is added to the counterfactual yield

⁹ This would require funds with a yield buffer below 300 bps to see their NAV increase such that they had a yield buffer of 300 bps. Funds with a yield buffer above 300 bps would see no change in their yield buffer.

buffer at end-August.¹⁰ Assuming that funds can only sell gilts to return to 300 bps where this figure is below 300 bps, it is estimated that LDI funds would have sold approximately £0.5 billion in additional gilt sales to comply with the buffer usability approach. In contrast, if a similar exercise is performed with a requirement that funds must always meet a 300 bps yield buffer (a 'hard rule'), procyclical sales would have been necessary and funds would have sold an additional £7 billion in September (see Chart 3).¹¹

Chart 3: Applying the yield buffer with the buffer usability approach would not lead to substantial pro-cyclical gilt sales, but applying it as hard rule would

Actual net sales of gilts by GBP-denominated LDI funds and the additional sales required to comply with different forms of the yield buffer, Sep-Oct 2022



Source: Central Bank of Ireland calculations.

Notes: Hard rule refers to a yield buffer requirement that funds always maintain a 300 bps minimum. Buffer usability approach refers to a yield buffer requirement that allows for a deviation below 300 bps if the preceding 3 months have had values above 300 bps. Where zero is present in the place of a bar this indicates that no additional gilt sales were required for compliance.

The benefits of a yield buffer to both investors and the wider economy arise from the reduced probability of a similar crisis reoccurring due to the behaviour of LDI funds. If LDI funds are not forced to sell gilts to unwind their leverage, unrealised losses on gilt positions will not be realised by their investors. Equally, the probability of severe disruptions in the

¹⁰ Gilt sales would not be required in September under the buffer usability approach as it allows for a deviation below 300 bps.

¹¹ This should not be interpreted as suggesting that total gilt sales would be higher if either yield buffer had been in place. This analysis is focused on estimating the quantity of gilt sales required for funds to meet the yield buffer requirement, assuming they can only do so by deleveraging via gilt sales. In practice, LDI funds may have been able to access additional recapitalisations from investors – with this being more so the case if a higher yield buffer level allowed them to wait for longer. The fund's actual gilt sales are captured in the movement in the yield buffer over August-October that is captured in the counterfactual, and analysis suggests that this level of sales would also have been lower if all funds had a minimum buffer of 300 bps entering the crisis.

gilt market due to the behaviour of LDI funds should be reduced. This would entail benefits for other investors in gilts as well as the broader economy and financial system, given the importance of gilt market in the UK.

Transitional costs should be limited, as GBP-denominated LDI funds have already undertaken significant adjustment to comply with the measures outlined in the November 2022 letter. Irish-authorized GBP-denominated LDI funds now have yield buffers that are above 300 bps, with this adjustment largely coming via deleveraging. In addition, nearly all funds in scope have incorporated 300 bps or higher as a trigger point at which they request recapitalisations, and target a yield buffer level in excess of 300 bps after recapitalisation.

As the Central Bank is codifying a yield buffer that funds have already made adjustments to comply with, the initial costs of such a policy have already been absorbed. As funds have already adjusted their yield buffer level, they do not have to sell any additional gilts to deleverage, nor do investors have to provide additional capital to the fund. Any secondary impact from funds and investors' activity to come into compliance with the yield buffer will also have been absorbed.

There may be costs that will accrue over time, beyond the immediate transition costs imposed. If investors have allocated more capital to their LDI funds to maintain the same level of hedging, this capital will not be receiving a superior return on other assets elsewhere. Thus, there may be an opportunity cost for investors, in the form of lower returns for scheme members. However, the measures would not disrupt the core function of LDI funds, which is to hedge their investors' liabilities, rather than generate leveraged returns. Finally, if LDI funds have less demand for long-ended gilts, then there may be less liquidity in long-ended gilts during non-stressed conditions, although the risk of market dysfunction during stressed times is reduced.

5. Legal basis

The yield buffer is codified under Article 25 of the AIFMD, as transposed to Irish law by way of Regulation 26 of the Irish AIFM Regulations. Regulation 26 gives powers to impose restrictions on the leverage that AIFMs are entitled to employ with respect to the AIFs they manage, where leverage is judged to contribute to systemic risk or disorderly markets. Codifying the yield buffer with Regulation 26 is consistent with previous macroprudential decisions of the Central Bank with respect to alternative investment funds (property funds).¹²

¹² See "[Macroprudential measures for GBP Liability Driven Investment funds](#)" for more detail.

The yield buffer is codified as an 'other restriction', rather than as a single leverage limit. As previously highlighted, the yield buffer will limit each fund's leverage based on the duration of their portfolio. This necessitates the use of the authority to impose other restrictions under Regulation 26 and, unlike the macroprudential measures introduced for property funds, the Central Bank does not intend to codify the yield buffer as a single leverage limit. The macroprudential measures are also imposed by way of condition of authorisation under Regulation 9 of the Irish AIFM Regulations.

GBP-denominated LDI funds with a non-Irish AIFM are also subject to the yield buffer regulatory requirement if they are authorised in Ireland. Where a non-Irish AIFM that is not already subject to the yield buffer requirement under Article 25 measures in their home Member State is managing an Irish-authorised GBP-denominated LDI fund, the yield buffer regulatory requirement will be imposed on the Irish-authorised GBP-denominated LDI fund by way of condition under the relevant domestic funds legislation.

6. Conclusion

Irish-authorised GBP-denominated LDI funds played a significant role in the gilt market crisis in 2022. They accounted for around 30 per cent of net gilt sales by LDI firms over the crisis period. Sales were concentrated amongst funds who had a yield buffer below 300 bps.

After the initial supervisory expectations set in response to the crisis, the Central Bank is now codifying and augmenting the yield buffer expectation under Article 25 of the AIFMD. Building on the November 2022 letter and November 2023 public consultation (CP157), this codification and augmentation aims to strengthen the resilience of LDI funds and to reduce the probability that Irish-authorised GBP LDI funds contribute to future crises in the UK government bond (gilt) market.

The Central Bank will closely monitor the adoption of the yield buffer measure, its impact and undertake a periodic review of the measures. The Central Bank will conduct regular monitoring of the yield buffer to ensure that it is achieving its macroprudential aims and that it is not imposing undue burden on market participants or the broader economy. Consistent with the Central Bank's macroprudential policy framework, the yield buffer measure will be subject to a periodic framework review.

Annex

LDI funds in scope of the measures: additional guidance

To aid fund managers on the definition of GBP-denominated LDI funds and those funds that should be considered in scope, the Central Bank provides a list below of various ways the investment objectives of LDI funds have been described. This list is based on a review of financial statements' and prospectuses', and it should be considered as guidance only and as non-exhaustive.

- High concentration of investment in UK Treasury, UK Treasury Inflation Linked bonds, interest rate swaps.
- The investment objective of each Fund is to seek to provide a series of cash flow payments which when combined with returns which an investor may receive from cash it may hold on deposit will provide a total return which reflects that of a profile of fixed rate cash flows and/or that of real rate cash flows with payment terms linked to the UK Retail Price Index.
- The investment objective of the Fund is to seek to provide a leveraged return to a specific UK Treasury Gilt.
- Large amount of holdings in repurchase agreements using collateral: UK Gilt Inflation Linked bond.
- Exposure to liquid or near cash instruments, primarily UK government gilts and index-linked gilts together with the flexibility to invest in interest rate swaps, inflation swaps and total return swaps in relation to such gilts.
- A fund with an exposure to liquid or near cash instruments together with inflation swaps which are designed to match the change in the UK Retail Price Index over the period to the maturity of each Fund.
- To seek to provide a leveraged exposure to the UK Index Linked Gilt with a specific yield and maturing in a given year.

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