



**The Actuarial Profession**

making financial sense of the future

**Consultation Response**  
**UK Debt Management Office**  
**CPI-linked Gilts: A Consultation Document**

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22 September 11

## **About the Institute and Faculty of Actuaries**

The Institute and Faculty of Actuaries is the chartered professional body for actuaries in the United Kingdom. A rigorous examination system is supported by a programme of continuous professional development and a professional code of conduct supports high standards, reflecting the significant role of the Profession in society.

Actuaries' training is founded on mathematical and statistical techniques used in insurance, pension fund management and investment and then builds the management skills associated with the application of these techniques. The training includes the derivation and application of 'mortality tables' used to assess probabilities of death or survival. It also includes the financial mathematics of interest and risk associated with different investment vehicles – from simple deposits through to complex stock market derivatives.

Actuaries provide commercial, financial and prudential advice on the management of a business' assets and liabilities, especially where long term management and planning are critical to the success of any business venture. A majority of actuaries work for insurance companies or pension funds – either as their direct employees or in firms which undertake work on a consultancy basis – but they also advise individuals and offer comment on social and public interest issues. Members of the profession have a statutory role in the supervision of pension funds and life insurance companies as well as a statutory role to provide actuarial opinions for managing agents at Lloyd's.

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Dear Mr Bhachu

### **Debt Management Office CPI-linked gilts – a consultation**

Thank you for the opportunity to respond on Debt Management Office CPI linked gilts – a consultation. This response incorporates comments from the Finance and Investment, Life, Pensions and General Insurance Practice Executive Committees of the Actuarial Profession.

#### **Summary**

The Institute and Faculty of Actuaries welcomes the principle of issuing CPI-linked gilts if this does not materially impact the liquidity of the existing RPI-linked gilt market. The best way of ensuring liquidity for both RPI-linked gilts and CPI-linked gilts would be to increase the percentage of inflation-linked gilt issuance as a proportion of total gilt issuance at the time that CPI-linked gilts were launched.

#### **Potential demand for CPI-linked gilts**

1. What is the potential source, scale and depth of demand for CPI-linked gilts in an absolute context and also relative to RPI-linked gilts? How might such demand translate into cost-effective issuance for the Government? What would be the size of any premium that potential investors would be willing to pay for CPI-linked gilts (e.g. as a spread to RPI-linked gilts)?

Initial demand for CPI-linked gilts is likely to come from investors that wish to hedge CPI-linked liabilities. Over time, as the market becomes more deep and liquid, we may see broader interest from relative value investors. This will depend on the pricing of these instruments and also on whether they are included in investors' benchmarks e.g. inflation-linked bond indices. We understand that FTSE have announced that any CPI issues would be included in indices from the outset.

The demand from hedging investors (i.e. investors using inflation-linked instruments to hedge inflation linked liabilities, and not hedge funds) is likely to consist mainly of UK pension funds and insurers that write UK pensions business (principally pension annuity business), and we focus on these investors in this response.

The defined benefit pension market holds approximately £1,000bn of assets. A small proportion of private sector schemes will have all liabilities linked to CPI, but a much greater proportion will have pensions linked to CPI in deferment and RPI in payment. Estimates of the size of liabilities that are linked to CPI are of the order of £250bn - £300bn. Currently around 20-30% of defined benefit assets are invested in liability hedging investments, but that proportion is rising quickly as schemes become more mature (most schemes being closed to new members and/or future service) and many schemes move towards buy out.

In the shorter term, many pension funds may hedge only a part of their CPI-linked liabilities, and some may choose to continue to use RPI-linked instruments (index-linked gilts or swaps) as a proxy for CPI if the market is not sufficiently liquid or if the pricing relative to RPI breakevens is seen as unattractive.

- The most immediate source of demand may come from bulk buyout insurers, who face a capital charge if they do not hedge CPI-linked liabilities with CPI-linked assets. So far the pricing basis for such insurance contracts for CPI-linked liabilities would be very close to RPI breakevens because of the lack of liquid hedging instruments. If CPI-linked gilts were issued at a discount to RPI breakevens (even if the size of discount did not reflect best estimate expectations of the CPI/RPI basis) this would be attractive to these insurers as a hedging instrument. The availability of CPI-linked gilts at a discount to RPI breakevens would allow insurers to offer improved pricing for buying out CPI-linked liabilities which may stimulate an increase in buy out activity. The demand from insurers relates specifically to new bulk buyout deals, as existing business will have been written with reference to RPI inflation.
- There may also be significant demand from pension schemes that are expecting to buy out CPI-linked liabilities with an insurer in the near term, who wish to reduce volatility between their assets and the insurer's pricing basis.
- Private sector defined benefit schemes may have demand, but whether they wish to switch from using RPI instruments for hedging to CPI-linked gilts will depend on the extent (and accuracy) of their existing hedging programme, the perceived liquidity of the CPI-linked gilt market, and the perceived relative value of CPI-linked gilts relative to using RPI-linked instruments as a proxy hedge.

- Funded public sector (or ex-public sector) schemes are more likely to have 100% liabilities linked to CPI, but historically have been less likely to engage in liability hedging as these schemes are more likely to remain open to new active members.

It is difficult to estimate the pricing differential between RPI and CPI given the current low level of liquidity of traded CPI inflation. Current market pricing (see table below) shows an estimated differential between CPI and RPI of 0.3%-0.8% depending on maturity however estimates of the actual RPI/CPI differential (or 'wedge' as it is often called) range from 0.5% to over 1% showing that CPI doesn't reflect the true discount required and is therefore relatively expensive. Should CPI linked gilts reflect similar pricing to the current CPI swaps market this would clearly benefit HMT by offering relatively cheaper funding.

The bid/offer spreads offered for CPI pricing are much wider than for RPI pricing. The table below illustrates the difference between offer prices for CPI and RPI at various maturity points, based on broker screens from the two counterparties that currently offer CPI pricing. While this pricing may be representative for small trades, given the lack of liquidity it is likely that pricing would be less attractive if a pension fund or insurer were to hedge a large CPI liability exposure through the swap market at the current time. A large trade could be expected to move the mid-price.

Maturity	CPI pricing	RPI pricing	Difference
2 year	2.30	3.01	0.71
5 year	2.43	2.89	0.45
7 year	2.50	2.93	0.43
10 year	2.70	3.08	0.39
12 year	2.84	3.19	0.35
15 year	3.04	3.34	0.30
20 year	3.22	3.49	0.27
25 year	3.28	3.54	0.26
30 year	3.31	3.58	0.27

Source Bloomberg, offer prices from JPM & RBS, 7th September 2011

2. What is the substitutability between potential CPI-linked gilts and RPI-linked gilts? If the Government were to continue only to issue RPI-linked gilts, to what extent would they provide a

suitable hedge for CPI-linked liabilities? What are the prospects for CPI/RPI hedging products emerging as an alternative liability management tool to CPI-linked gilts?

There is high substitutability between RPI and CPI-linked gilts - in the absence of CPI-linked gilts, RPI linked gilts will continue to be used as the best proxy and the basis risk between the two measures of inflation will be accepted and managed. However there may be adverse impacts on the development of the market for hedging pension scheme liabilities if a liquid market in CPI-linked instruments does not develop. For example, if a pension scheme wishes to buy out liabilities linked to CPI with an insurer, currently the pricing offered by insurers to hedge CPI linked liabilities assumes CPI priced very close to RPI making CPI expensive. This is because given the lack of liquidity in CPI hedging instruments so the insurer prices these liabilities very conservatively. The scheme trustees or sponsor may therefore find the terms offered very unattractive which may deter them from proceeding to buyout, even though this would otherwise be advantageous from a risk reduction perspective.

A CPI swap market will develop to a degree even without CPI-linked gilt issuance (and such swaps have already been traded). However, without the support of a CPI-linked gilt issuance programme, the market is likely to remain one sided with an imbalance between supply and demand, with poor liquidity and pricing that will put off most pension fund investors from using such instruments – this has been the case in the LPI (limited price indexation) market which has hampered cost effective pension fund hedging.

3. If the Government were to issue CPI-linked gilts, how would issuance of these gilts fit into the existing index-linked gilt issuance strategy? What would be respondents' preferred split of issuance between RPI-linked gilts and CPI-linked gilts? What maturities or maturity range would be most suitable for hedging CPI-linked liabilities, taking into account the existing range of RPI-linked gilts?

To accommodate the emergence of a CPI-linked gilt market the overall issuance programme may need to be tilted further towards inflation-linked issuance from conventional gilts as pension fund investors have often requested (and yield levels would suggest this is attractive for HMT). This could permit an increase from twenty to twenty five percent inflation-linked to over thirty percent. Whilst the same types of issuance (auction, syndication, and mini-tap) could all be used, switch facilities would greatly assist building liquidity in the new bonds.

In order to maintain liquidity in both markets ongoing issuance of both RPI and CPI-linked gilts would be required. Given the pattern of demand identified above a split of forty to fifty percent of new inflation-linked issuance in CPI and fifty to sixty percent in RPI would broadly represent the likely demand from hedgers however a greater bias towards CPI may initially be required to kick start the program, enabling schemes to shift their exposure, liquidity to be established and to get CPI to trade at a fair price rather than a price distorted by a perception of constrained supply. It should be noted that there is still a fair

degree of uncertainty in exactly how demand for CPI-linked issuance will emerge, so some flexibility will be required.

Given that initial demand for more accurate hedging instruments is likely to come from more mature schemes or pension buyout companies (that tend to focus on pensioner liabilities), we believe the greatest demand would be in the ten or fifteen year maturity sector (because gilts with these maturities would best reflect the duration of typical pensions in payment liabilities), which could then be extended outwards to twenty years then thirty years. For those pension schemes that have a CPI linkage in deferment but not payment, the greatest exposure to CPI will be in the first fifteen years, where there are still significant liabilities exposed to deferred pension increases. Some interest was expressed for maturities all the way out to 50 years, but this was not a widespread view.

4. If the Government were to issue CPI-linked gilts, would respondents who hold RPI-linked gilts ideally prefer to shift a proportion of their portfolio from RPI-linked gilts into CPI-linked gilts? If so, what form might this take (e.g. relevant Government support such as conversion/switch operations)?

For those hedging investors who have currently hedged using RPI-linked gilts and whose liabilities are now CPI this would be very useful but only when CPI stock has been issued so pricing is transparent. With that established a switch/ conversion programme could improve CPI liquidity establishing size in bonds although this would be best served by a limited number of CPI stocks so the CPI curve is not unnecessarily fragmented.

#### **Market fragmentation and other risks**

5. Would the introduction of CPI-linked gilts detract from the liquidity of RPI-linked gilts or otherwise fragment the index-linked gilt market? How might any such fragmentation be minimised?

The RPI-linked gilt market already has limited liquidity in comparison to the conventional gilt market and the addition of another variant of gilt will clearly fragment liquidity. This effect can be minimised by limiting the number of CPI stocks until reasonable market size has been established in individual issues and also by continuing to issue in both forms which may require a change to the overall shape of the DMO remit increasing the proportion of inflation linked issues. Liquidity in the new CPI linked gilts may take a while to emerge (the market will need to find a price equilibrium for the basis between CPI breakevens and RPI breakevens) and the use of syndications and switch facilities to build up issuance more quickly can help here.

Some actuaries expressed a concern that maintaining liquidity of the existing RPI market would be higher priority than issuing CPI-linked issuance. However it was also expressed repeatedly that the best way of avoiding a conflict between building up liquidity in CPI-linked issuance and maintaining

liquidity in RPI-linked issuance would be to increase the overall proportion of gilt issuance that is inflation-linked.

6. Are there any other issues and risks that the Government should be aware of in launching a new CPI-linked gilt and developing a market for such gilts? If so, how might any such risks be managed?

To further enhance the cost effectiveness of the issuance perhaps issuing CPI gilts with zero floors could be considered. This would make them comparable to CPI bonds issued by other major countries (e.g. US and France) and homogeneity of structure should make it easier for international investors to compare UK CPI gilts with other issues which should increase demand in the long-run. Currently zero percent inflation floors are expensive in the UK market making them attractive to sell, although most of the activity is in year-on-year floors rather than cumulative. Although if we consider applying floors to CPI gilts, it would be logical to also consider them for RPI-linked gilts (where existing demand for buying floored RPI exposure would be large).

The facility to repo CPI-linked bonds will assist the formation of the market, particularly confirmation that CPI-linked bonds will be eligible in DBV (delivery by value) repo transactions. The opportunity to shift to issuing with an inflation floor is one issue/opportunity however we have dealt with that elsewhere in this response.

Interest was expressed from actuaries working in general insurance for gilt issuance linked to earnings inflation to assist with matching liabilities related to Participating Payment Orders in respect of bodily injury claims (however demand for this would be small in relation to demand for CPI-linked issuance for hedging pension liabilities).

### **CPI methodology**

7. Does the possibility of eventual inclusion of owner-occupier housing in the CPI affect the relative demand for a CPI-linked gilt compare with an RPI-linked gilt, and/or the appropriate timing for its introduction?

Inclusion of owner-occupied housing in the CPI would not, in itself, be expected to remove the differential between CPI and RPI, although the gap between the two would typically be smaller and would be more stable than currently in the absence of any other changes taking place in the make-up of CPI at the same time. The fact that CPI uses a geometric average whilst RPI uses an arithmetic average means we would expect CPI inflation to remain below RPI inflation, and to be more consistently below RPI. Currently there can be large swings in the differential between CPI and RPI during periods of rising or falling interest rates because of the impact on housing costs.



This change would not be expected to remove demand for CPI linked gilts, since investors' liabilities will remain linked to CPI rather than RPI and we would expect a material differential between the two to remain because of the differences in construction methodology.

### **Instrument design**

8. If the Government were to issue CPI-linked gilts, it is proposing that they would follow the same design as three-month lagged RPI-linked gilts, unless there were a compelling case to make any modifications. Are there any such modifications to instrument design that the Government should consider? In addition, how should any CPI-linked gilts be distinguished from RPI-linked gilts (e.g. in the naming convention). Please state the rationale for your comments.

The obvious convention would be to follow the three-month lagged index-linked gilt format for CPI linked gilts, as this has market acceptance and systems are in place to handle these bonds, however there is the compelling case for one modification. Current market pricing e.g. for LPI (0,5) or LPI (0,∞) indicates the huge demand outstanding for inflation floors within the UK hedging community (pension funds and life insurers) – who are expected to be the principal investors in CPI linked gilts. Whilst UK demand is largely for year-on-year floors issuance of CPI linked bonds overseas, notably in the US and Europe, already contain an inflation floor which protects the investor should CPI prove to be negative over the entire life of the bond. If the Government were to issue in line with the accepted global structure (rather than three-month lagged UK index-linked gilts) by adopting a floor this would facilitate simpler global comparisons of CPI bonds and encourage overseas investors into the UK market. At the same time this characteristic would clearly be valued by the domestic investor community which should in turn make issuance most cost effective for the Government.

9. If the Government were to issue CPI-linked gilts, do respondents agree with the Government's proposal not to make subsequent adjustments to the nominal value and / or coupon payment on CPI-linked gilts to take account of any revision in the CPI following its original publication? In addition, do respondents agree with the Government's proposal that accrued interest should be calculated using the first publication of the CPI, regardless of any potential later revisions?

We would generally support this approach and note that CPI swaps trade without any revision language so this would be complimentary to the swap market, permitting asset swapping of CPI-linked bonds which will broaden their appeal.

### **Lead time for implementation and inaugural issuance**

10. If the Government were to issue CPI-linked gilts, when should the first issuance be? What would be the lead times required by investors, primary dealers and other interested stakeholders?

Assuming the structure of CPI gilts is the same as current three-month RPI issues then there should be limited systems requirements for the new bonds and with demand already in place - pension scheme liabilities have already switched to CPI - a prompt move would be preferred. In effect this would mean the next issuance year i.e. from April 2012. Should an alternate structure be utilised e.g. incorporating an inflation floor then additional lead time may be required by some participants.

11. Is there a preferred maturity point at which the Government should focus any initial issuance of CPI-linked gilts?

Given the pattern of demand we have identified above we would suggest an initial issue at 10 or 15 years since this is likely the point of greatest demand (in the short term demand is likely to be greatest for the hedging of pensions in payment linked to CPI, which may typically have a duration similar to a 15 year CPI-linked gilt). Thereafter the establishment of a curve via issuance at the 20 year maturity and the 30 year maturity could be augmented by switch facilities to improve liquidity and market size.

We hope the above will be helpful, but if you have any questions or would like to discuss any of these matters further please do not hesitate to contact us. Please contact Kirstin Lambert (0207 632 2168 or via [Kirstin.Lambert@actuaries.org.uk](mailto:Kirstin.Lambert@actuaries.org.uk)) in the first instance.

Yours sincerely,

A handwritten signature in black ink that reads "Paul Fulcher". The signature is written in a cursive style with a large, prominent initial "P".

Paul Fulcher  
Chair of the Finance and Investment Practice Executive Committee