CLWYD PENSION FUND

RISK MANAGEMENT FRAMEWORK MONTHLY MONITORING REPORT

May 2018

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OVERRIDING OBJECTIVES

Stable and affordable contribution rate

versus

Achieve returns in excess of CPI required under funding arrangements

Objectives are two-fold but conflicting

- Risk needs to be taken in order to achieve returns, but risk does not guarantee returns

Need to ensure a reasonable balance between the two objectives

- Do you need to take the same level of risk when 70% funded (say) as when 110% funded?

EXECUTIVE SUMMARY

= as per or above expectations = to be kept under review = action required

Overall funding position

- Ahead of existing recovery plan
- Funding level below the first soft trigger
- Possible action will be discussed at FRMG following trigger breach

In absolute terms the funding position is c.11% ahead of target. However there is continuing uncertainty in the outlook for future returns which could impact on the future funding requirements.

Liability hedging mandate

- Insight in compliance with investment guidelines
- Outperformed the benchmark over the quarter and since inception
- Hedge ratios marginally below target levels

No action required.

Synthetic equity mandate

- Insight in compliance with investment guidelines
- Outperformed the benchmark over the quarter
- Maturity constraints as expected

No action. We are currently working towards a replacement equity protection strategy ahead of the expiry of the current options structure at the end of the month.

Collateral and counterparty position

- Collateral within agreed constraints
- The Insight QIF can sustain at least a 1.25% rise in interest rates and fall in inflation, in combination with a 35% fall in equity markets and a 0.5% increase in z-spreads without eliminating all collateral

Collateral adequacy to be monitored quarterly. Potential to release c.£55m as at 31 December 2017, based on the agreed collateral guidelines.

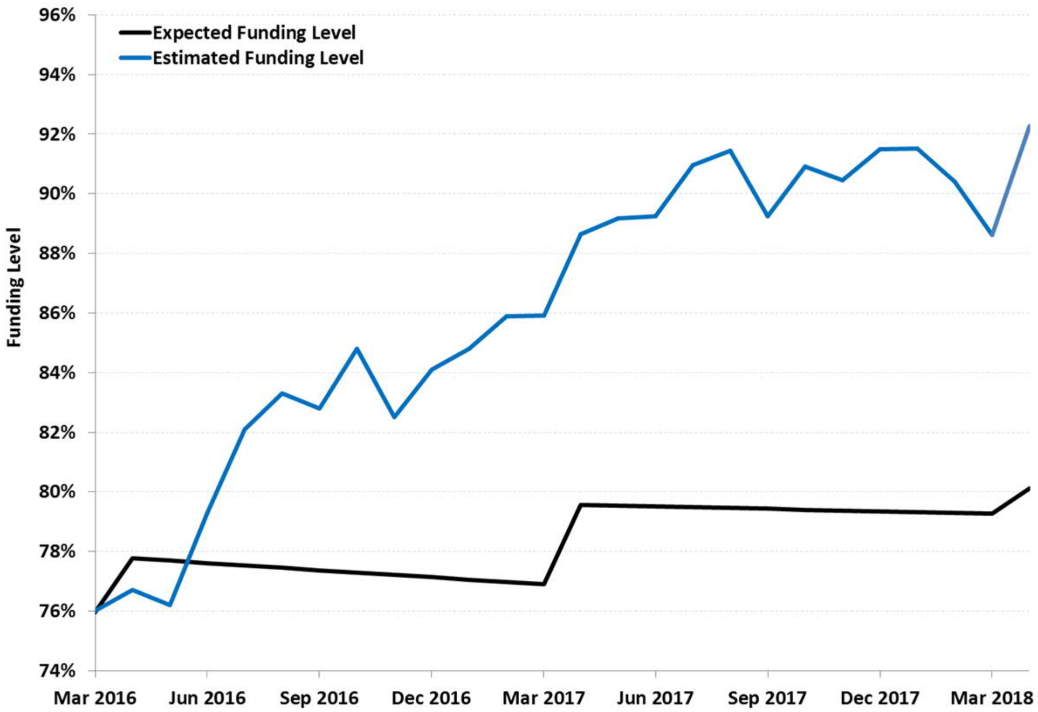
LIBOR Plus Fund

- Fund has outperformed its target over the quarter and since inception
- Management team stable and no change in manager rating
- Allocation of £50m remains appropriate

No action required. Insight have placed a temporary limit on future investments into the Fund at any weekly dealing point - to be kept under review.

FUNDING LEVEL MONITORING TO 30 APRIL 2018

Estimated funding position since 31 March 2016



Funding Level Triggers

It was concluded at the FRMG on 20 June 2017 that the funding level is not currently sufficiently high to warrant de-risking in a traditional sense via a change in long term strategy.

It was agreed that a “soft” trigger will be put in place to prompt FRMG discussions regarding potential actions as the funding level approaches 100% on the current funding basis. This funding level will be monitored approximately by Mercer on a daily basis.

Comments

The **black line** shows a projection of the *expected* funding level from the 31 March 2016 valuation based on the assumptions (and contributions) outlined in the 2016 actuarial valuation. The *expected* funding level at 30 April 2018 was around 80%.

The **blue line** shows an estimate of the progression of the funding level from 31 March 2016 to 30 April 2018.

At 30 April 2018, we estimate the funding level and deficit to be:

92% (£153m*)

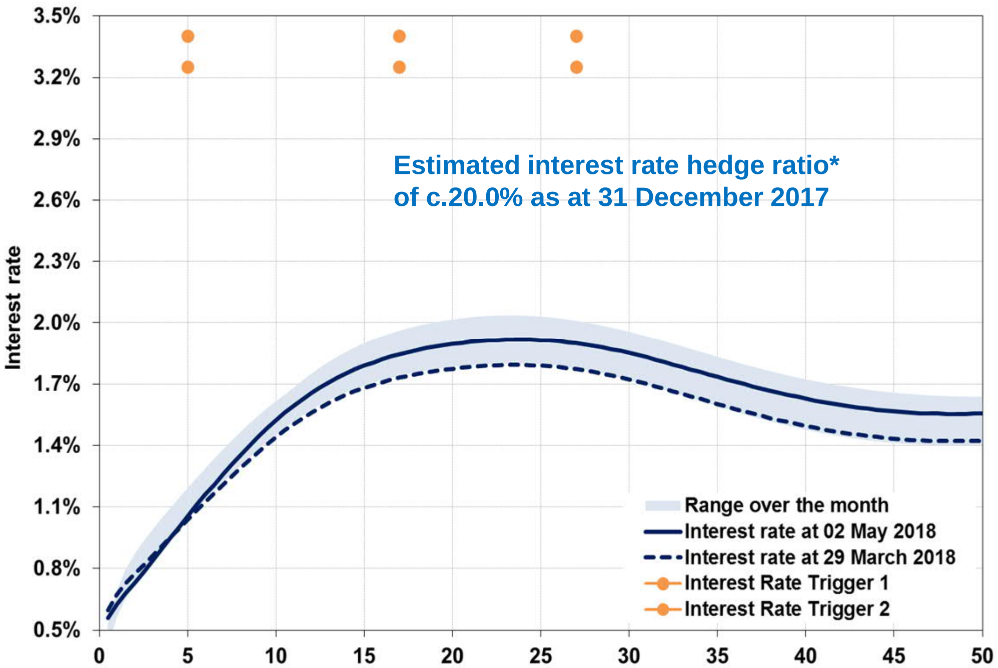
This shows that the Fund’s position was ahead of the expected funding level at 30 April 2018 by around 12% on the current funding basis.

Uncertainty continues to be prevalent in the investment environment due to ongoing external political and fiscal factors. This could mean that the likelihood of achieving the assumed real returns going forward has fallen. To illustrate the impact, a reduction of 0.25% p.a. in the assumed future investment return/real discount rate would reduce the funding level by c.4% to c.88% with a corresponding increase in deficit of £91m to £244m.

** Asset value of £1,822m as at 30 April 2018 provided by JLT on 29 May 2018.*

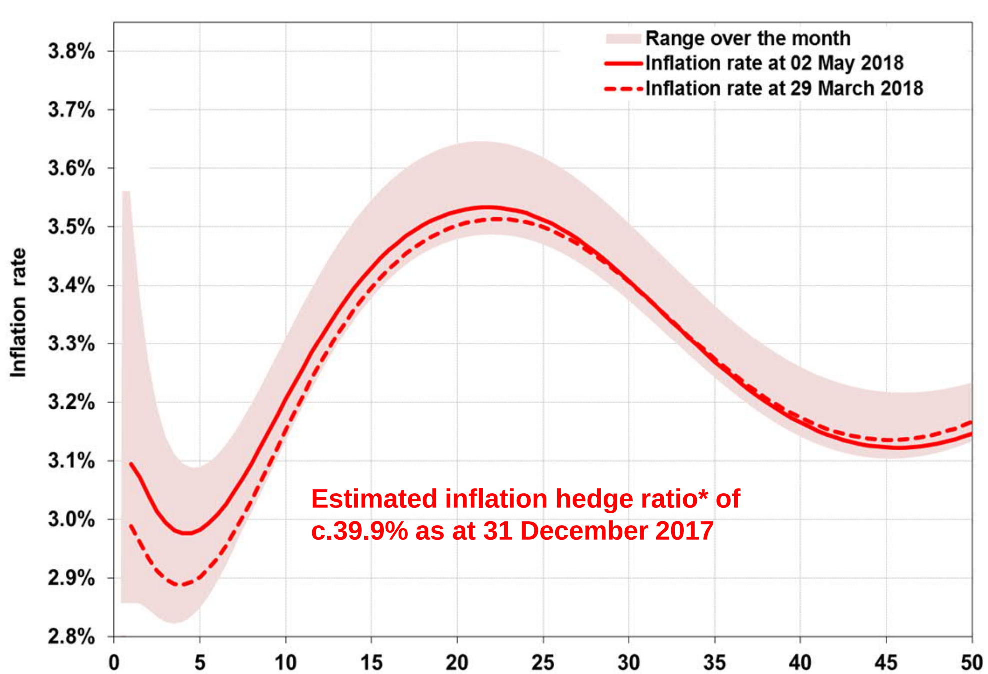
UPDATE ON MARKET CONDITIONS AND TRIGGERS

Change in interest rates



Date	Band 1	Band 2	Band 3	Band 4	Actual
31 December 2017	20.0%	20.0%	20.0%	20.0%	20.0%

Change in inflation rates (note: different scale)



Date	Band 1	Band 2	Band 3	Band 4	Actual
31 December 2017	40.0%	40.0%	40.0%	40.0%	40.0%

Comments

Interest rates rose over April 2018, with increases of up to c.0.1% observed at medium and long durations.

Based on market conditions as at 30 April 2018, yields would need to rise by c.1.4% p.a. before the Fund would hit any of the revised interest rate triggers implemented by Insight in September 2017.

Comments

Overall, inflation expectations were fairly stable over April 2018, but with falls of up to 0.1% observed at the shortest durations.

It has been agreed that Insight will not resume monitoring of the level of inflation hedging until the interest rate and inflation hedge ratios have been aligned.

** Hedge ratios calculated with reference to 2016 valuation cashflow analysis and relying on a discount rate of gilts + 2.0% p.a..*

UPDATE ON RELATIVE VALUE TRADE

Mark-to-market value of trade since inception

Note: no allowance made for yield improvement from the inflation trade.

Comments

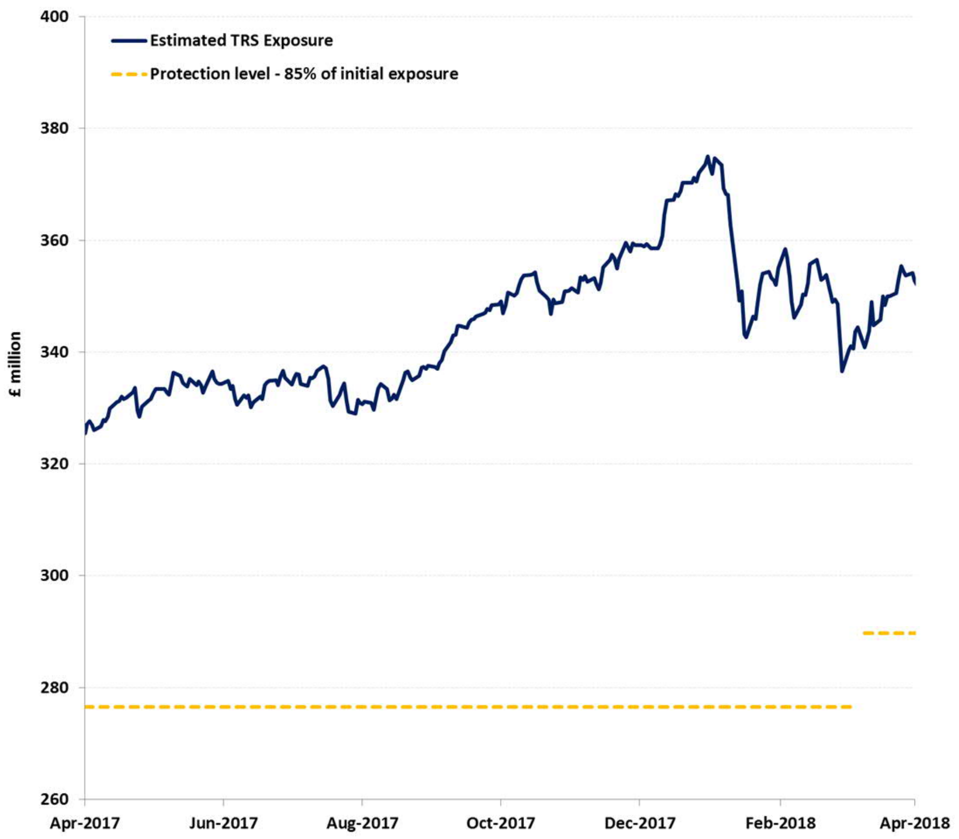
Insight estimated the potential net gain of the LDI restructure - implemented in Q1 2017 - to be c.£36.5m. This gain will be accrued incrementally over the lifetime of the trade, assuming repo and swap funding costs offset one another.

The relative value trade (i.e. holding gilts and "selling" interest rate swaps) will experience a mark-to-market gain if the difference between gilt and swap yields ("z-spread") falls over time. The mark-to-market gain rose by £0.8m over the month as z-spreads fell at longer durations of the curve over April 2018. The estimated gain was c.£13.6m as at 30 April 2018. We will continue to monitor this position over time.

At the FRMG on 20 June 2017, it was agreed that Mercer would monitor a "soft" trigger to prompt discussions around closing out the trade to "bank" the gain if the mark-to-market gain exceeds £25m.

EQUITY TRS PROTECTION

Equity protection



Comments

An equity option strategy was implemented to protect the Fund against falls in equity market values over a one-year period to 24 April 2018, however this has now been extended to expire on 24 May 2018.

In particular, put options were purchased to protect the value of the current equity TRS exposure beyond 15% market falls over the period to late April 2018. The extension of the put options was updated for protection beyond 15% of the market level at 24 April 2018. We are currently working towards a replacement protection structure ahead of the expiry of the current options mandate.

The chart illustrates the value of the equity TRS over the period from 24 April 2017 to 30 April 2018 (the **dark blue line**) and the **yellow dotted line** shows the level at which the protection will start to take effect.

Overall, the value of the Fund's TRS exposure rose over April 2018. Equity markets have rebounded somewhat in recent weeks but have not fully recovered amid ongoing concerns around the global economy.

We will continue to monitor the protection on a monthly basis.

GLOSSARY

- Actuarial Valuation - The formal valuation assessment of the Fund detailing the solvency position and determining the contribution rates payable by the employers to fund the cost of benefits and make good any existing shortfalls as set out in the separate Funding Strategy Statement.
- Collateral – Liquid assets held by the Fund as security which may be used to offset the potential loss to a counterparty.
- Counterparty – Commonly an investment bank on the opposite side of a financial transaction (e.g. swaps).
- Deficit - The extent to which the value of the Fund's liabilities exceeds the value of the Fund's assets.
- Equity option – A financial contract in which the Fund can define the return it receives for movements in equity values.
- Equity TRS (Equity Total Return Swap) – A financial contract in which the Fund receives the return on an equity index. In return the Fund must pay a regular financing fee to a counterparty bank.
- Flightpath - A framework that defines a de-risking process whereby exposure to growth assets is reduced as and when it is affordable to do so i.e. when "triggers" are hit, whilst still expecting to achieve the overall funding target.
- Funding level - The difference between the value of the Fund's assets and the value of the Fund's liabilities expressed as a percentage.
- Funding & Risk Management Group (FRMG) - A subgroup of Pension Fund officers and advisers set up to discuss and implement any changes to the Risk Management framework as delegated by the committee. It is made up of the Clwyd Pension Fund Manager, Pension Finance Manager, Fund Actuary, Strategic Risk Adviser and Investment Advisor.
- Hedging - A strategy aiming to invest in low risk assets when asset yields are deemed attractive. Achieved by investing in government backed assets (or equivalent) with similar characteristics to the Fund future CPI linked benefit payments.
- Hedge ratio – The level of hedging in place in the range from 0% to 100%.
- Insight QIF (Insight Qualified Investor Fund) – An investment fund specifically designed for the Fund to allow Insight to manage the liability hedging and synthetic equity assets.
- London Interbank Offer Rate (LIBOR) - An interest rate at which banks can borrow funds from other banks in the London interbank market.
- Z-spread – The difference between the yield on gilts and swaps.

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