

February 2019

## A HOLISTIC APPROACH TO “CASHFLOW MATCHING”

We are seeing increasing focus on cashflow considerations and Cashflow Driven Investing (CDI) has become one of the latest investment techniques to gain attention. However, there are a number of challenges with a cashflow based approach. In particular, there are assets which are attractive from a cashflow perspective (e.g. long lease property) but which introduce “risk” in the context of a typical mark-to-market assessment of funding because they don’t behave like the liabilities (e.g. values based on property markets rather than the gilt curve). In addition, traditional growth assets such as equities are typically excluded from a cashflow based assessment.

We have developed a cashflow model (in conjunction with Sciurus Analytics) that projects the future cash-flows generated by all of a scheme’s assets, rather than focusing only on “CDI” assets (which are typically limited to bond and bond-proxy assets).

This holistic view of the cashflow position can lead to some interesting observations and is particularly helpful in allowing investors to focus on the fundamental risks that they are running in their investment policies and in considering the risks they are exposed to in managing the journey from growth assets to a low-risk cashflow matching policy.

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*“...an intuitive approach that allows investors to ‘cut through the noise’ and focus on fundamental risks such as default, impairment and reinvestment.”*

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## THERE ARE FOUR TYPES OF ASSETS

We believe that there are four main categories of assets that pension schemes can invest in:

- 1 Cash/Gilts – collateral assets**  
High quality assets that provide eligible collateral for liability hedging and provide predictable cashflows.
- 2 Predictable cashflow assets with the “right” mark-to-market**  
Fixed income assets such as investment grade corporate bonds or infrastructure debt which provide predictable cashflows and which are sensitive to changes in interest rates and so behave in the same way as the liabilities from a mark-to-market perspective. As such, these are helpful assets from both a cashflow and a funding risk perspective, however, the yields available tend to be lower than for category 3 below.
- 3 Predictable cashflow assets with the “wrong” mark-to-market**  
Quasi-fixed income assets (e.g. long lease property and unlevered infrastructure equity) which provide reasonably predictable cashflows but which are not typically valued in the same way as liabilities. Therefore, whilst these are good cashflow assets they do introduce materially more funding risk than category 2 assets. However, yields are typically higher than for traditional fixed income assets of similar quality.
- 4 Assets without predictable cashflow**  
These would be typical growth assets, such as equities or hedge funds, where returns are more reliant on capital growth and capital gains or alpha than on “yield” and as such there is a low degree of predictability. In addition, these assets are not valued in the same way as liabilities.

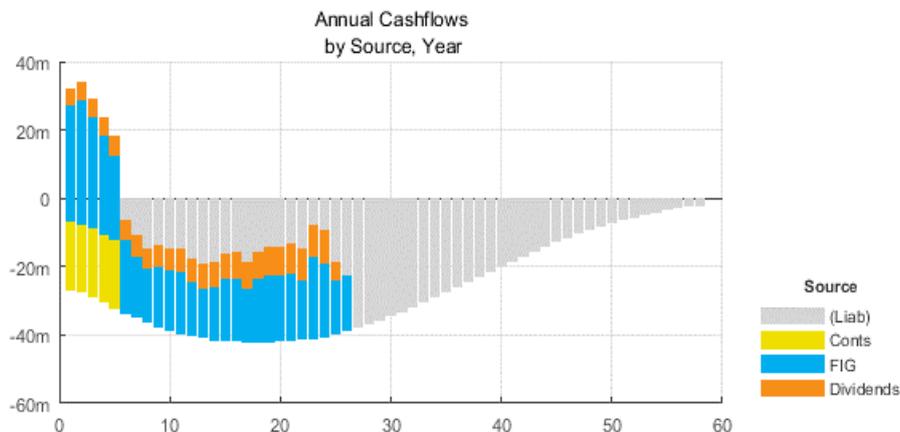
Under a cashflow approach, the distinction between the four categories above becomes less important as the fundamental assessment is the ability to meet the scheme’s cashflow demands. We can model the cashflows that could reasonably be expected from any asset and apply appropriate haircuts in order to assess this. Even “growth” assets such as equities can be modelled as cashflow generating assets using assumptions regarding dividend yields, dividend growth and exit multiples.

## INITIAL CASHFLOW PROJECTION

To demonstrate our approach, we have modelled an example closed scheme with liabilities of c£1bn and assets of c£800m invested across gilts, other fixed income assets and growth assets. We also assume deficit repair contributions of £20m per annum for the next five years.

In the chart below, we have shown an initial projection of the cashflows that are typically included in a CDI approach as well as dividend income. We have provided a brief description below of what is being represented in the chart.

- ❖ The grey bars represent the projected nominal benefit payments and the coloured bars show the various sources of cashflow from income and maturity proceeds available to meet benefit payments. For this example, the benefit payments exceed the contributions, so the scheme is cashflow negative.
- ❖ The light blue bars represent investments where there is a high degree of predictability regarding the cashflow schedule (income and maturity proceeds), e.g. buy and maintain corporate bonds, secure income assets, etc. with appropriate haircuts for impairment and default.
- ❖ The orange bars represent the income available from growth assets (equity dividends, property rental income etc). This income can be relatively stable in the near term but assumptions around income growth (e.g. dividend growth) can be made which would be more subjective and can be flexed in the model.
- ❖ We would also include any deficit recovery contributions (shown in yellow).



This particular scheme has positive cashflow for the next five years when investment income is taken into account. The excess cashflow in the early years would be reinvested to help meet the shortfall that is anticipated in later years. Whilst not shown in the chart above, the scheme also has collateral assets which could be used to meet any cashflow shortfall in the near term. It is clear that the current CDI consistent assets are insufficient to meet the scheme’s medium and longer term cash requirements and consideration needs to be given to how the scheme’s growth assets and remaining collateral assets would be used to fill the gap.

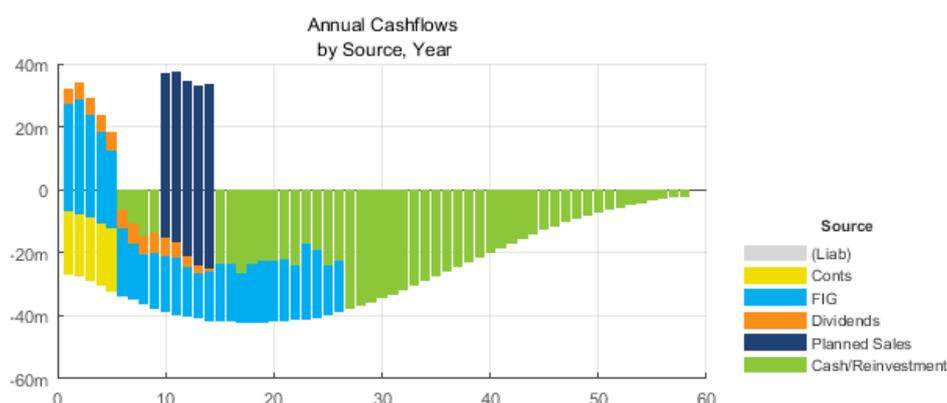
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**By including all assets in the projection, we can consider this particular aspect and test the sensitivity to assumptions around income growth, capital impairment and reinvestment.**

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## ASSESSING FUNDAMENTAL RISKS

Many pension schemes are on a de-risking journey and are aiming to sell their growth assets at some point in the future to focus solely on cashflow matching assets. Therefore, we can include “planned” asset sales (shown in dark blue) and make assumptions about the investment yields that the proceeds could be reinvested at. For example, for equities, assumptions on the price at which these assets could be sold would need to be made to incorporate them into this approach. The green bars include both the collateral assets (which could be used as an interim source for cashflow as described above) and the cashflow matching assets introduced when surplus cashflow or disinvestment proceeds from selling growth assets are reinvested.



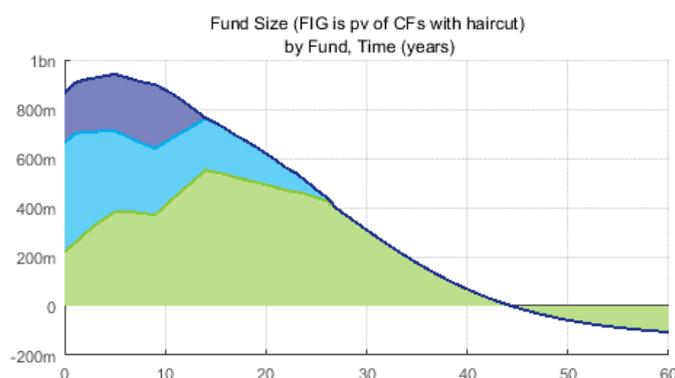
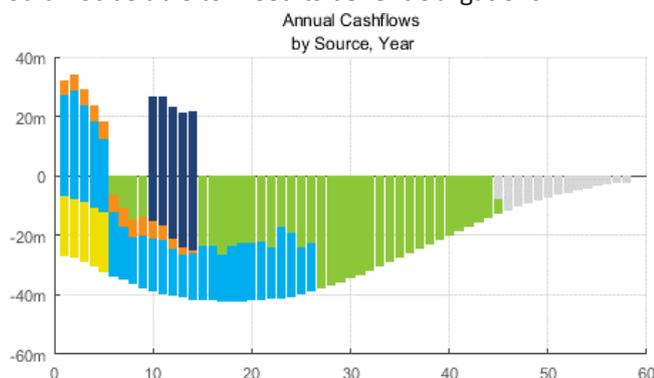
So, what are the key assumptions with this holistic cashflow approach and how can we sensibly stress them under different scenarios? In this example, the key assumptions are:

- **Growth asset cashflows for both income and capital** – we have assumed that income increases in line with consensus growth forecasts. For capital, our initial assumption is derived to ensure that the total return (from income and capital appreciation) is in line with our “best estimate” assumptions. We demonstrate the sensitivity to this assumption in the Price Risk section.
- **Timing of growth asset sales** – we have assumed growth assets are held over the next ten years and are subsequently sold down over a five-year period. We demonstrate the impact of flexing this assumption in the Time Horizon section.
- **Reinvestment rate** – we have assumed that the proceeds from selling growth assets are reinvested at the risk-free rate implied by current gilt yields plus a credit spread. For schemes that have fully hedged interest rate risk, they have locked into current gilt yields and have therefore secured the risk-free reinvestment rate they are exposed to in the future. For schemes that have not hedged interest rate risk, there is a risk (or opportunity) that the risk-free reinvestment rate achieved in the future, as part of this important transition, could be lower (or higher) than the rate implied by current gilt yields.

Based on these “best estimate” assumptions, the scheme we have modelled would be expected to be able to meet all its benefit payments, over the life of the entire scheme. By applying intuitive adjustments to the assumptions above, we can start to assess the key risks associated with the “transition” from growth to lower risk matching assets that many schemes are intending to undertake and understand the impact these risks could have on the ability for schemes to meet their long term cashflow requirements.

## ❖ Price Risk

In the charts below, we have shown the impact of prices being 20% lower than expected when the growth assets are sold in ten years' time. In this scenario, all else being equal, the scheme would run out of assets in around 45 years' time and would not be able to meet its benefit obligations.



**This has helped trustees to understand that one of the fundamental risks they are exposed to when they invest in growth assets is price risk, but only when they sell assets. That is, they shouldn't be overly concerned with mark-to-market risk before these assets are sold.**

So what investment levers does the scheme have to manage this scenario? We explore these in the next two sections.

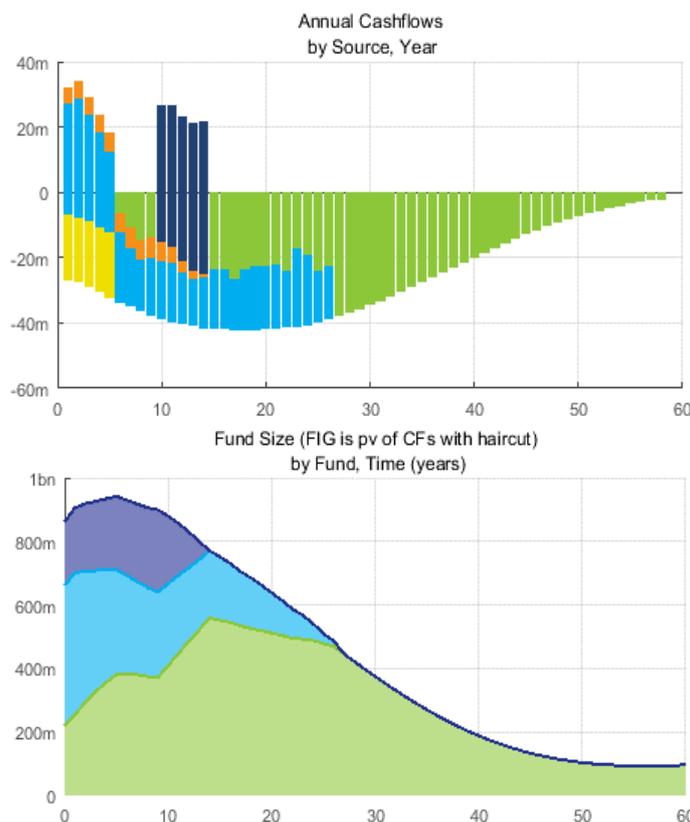
## ❖ Reinvestment

One lever available to the scheme is to take reinvestment risk. Our starting assumption was that the scheme had fully hedged interest rate risk and had "locked-in" the future risk-free component of the reinvestment terms. However, if we assume the scheme has not hedged and therefore has not "locked-in" the risk-free component of the reinvestment rate, there is the possibility that reinvestment could take place at a higher long term average cash rate than implied by current gilt yields.

For example, if we assume a long term average cash rate of 3% per annum, the scheme would be able to meet its benefit obligations even if growth asset prices are 20% lower than expected when they are sold.

However, the risk clearly runs both ways and if the long term cash rate at the point of reinvesting is lower than the rate implied by current gilt yields, then the scheme would be even worse off as a result of not locking-in future risk-free reinvestment terms.

We believe that understanding this fundamental risk of having hedged the scheme's reinvestment risk (or not) is a particularly important point to understand and to be able to assess.

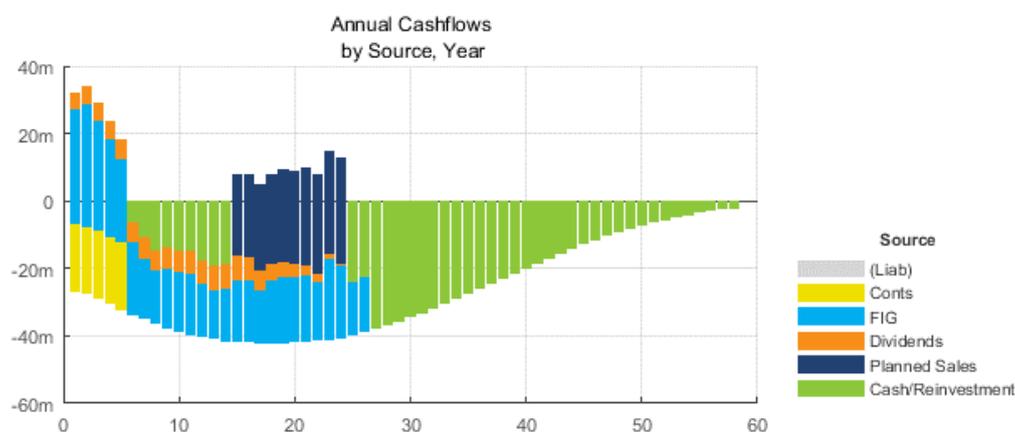


**This has helped trustees to understand the importance of hedging (or not hedging) the liabilities through a completely different lens and one they have found to be more intuitive.**

## ❖ Time Horizon

As shown in the previous charts, the planned asset sales (dark blue) provide cashflows that are well in excess of what is required to meet the expected benefit payments between years 10 and 15. Therefore, to the extent that schemes have already hedged and locked down their reinvestment terms, another lever to consider is “time”. Consideration could be given to transitioning from growth to low-risk cashflow matching assets over a longer period which allows the scheme to be exposed to the growth assets for longer. Also, spreading out the sale of growth assets over a longer period would reduce the risk of undertaking the transition at a bad time.

In the chart below, we show that by only starting the transition from growth assets in fifteen years’ time and selling the assets down over a ten-year period, the scheme would be able to sell its growth assets for 20% less than expected and would still be able to meet its cashflow requirements.




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**This has helped trustees to understand that in addition to price risk, the other key risk they are exposed to when investing in growth assets is this transition risk, i.e. the price that can be achieved at the point at which they transition from growth to low-risk matching assets. Using levers such as “time” can help manage this risk.**

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However, whilst the option of running risk for longer and transitioning more slowly could help to reduce “transition” risk, this may only be an option that could be considered by schemes with strong sponsors.

## SUMMARY

Moving away from a traditional funding assessment and focusing instead on schemes’ ability to meet their cashflow requirements can lead to some interesting observations. To help our clients assess this, we have developed a cashflow model (in conjunction with Sciurus Analytics) which projects the future cash-flows generated by all of a scheme’s assets, rather than focusing only on “CDI” assets.

We believe that this approach can help investors to focus on the fundamental risks that they are running in their investment policies and in particular to consider the risks they are exposed to in managing the journey from growth assets to a low-risk cashflow matching policy. The response to date from our clients has been that viewing the problem in a cashflow context is immediately more intuitive and helps to bring the focus back to the key fundamental risks of default, impairment and reinvestment.

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