Barnett Waddingham

Nottinghamshire County Council Pension Fund

Cashflow Modelling

Graeme D Muir FFA
Barnett Waddingham LLP

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Barnett Waddingham
Public Sector Consulting

Contents

1. Introduction

1.1. The purpose of this note is to set out some of the issues that Nottinghamshire County Council, as administering authority for the Nottinghamshire County Council Pension Fund ("the Fund"), will need to consider as the Fund matures.

1.2. Maturity essentially means how the mix of liabilities between active members and non-active members changes over time. A pension fund where most of the liabilities are in relation to active members is said to be immature whereas one where most of the liabilities are in relation to pensioners (current and deferred) is said to be mature.

1.3. The maturity level of all pension schemes does tend to increase with the passage of time as more members start drawing pension benefits. In the public sector, actions by central and local government may increase or decrease the rate of maturity and we are currently going through a period where the public sector is shrinking and this leads to LGPS funds maturing more rapidly.

1.4. There are also other factors which may impact on the rate of maturity such as auto enrolment, the effect of new Fair Deal guidance and the benefit changes from 1 April 2014.

1.5. The key issues associated with accelerated maturing of a pension fund are primarily the impact on net new money to the Fund (contribution income less benefits paid) and how this impacts on the investment strategy and the underlying amount of risk that then follows.

1.6. The purpose of this note therefore is to report on modelling the net new money and cashflow to and from the Fund under different scenarios and to assess when the cashflow position may then start to have an impact on investment strategy.

2. Background

2.1. Our starting point for the modelling is the initial results for the 2013 actuarial valuation of the Fund, using a discount rate of 6.1% per annum. The cashflows produced for these initial results also take into account the changes in benefit structure from 1 April 2014 for future service.

2.2. The key purpose of the valuation is to determine the required levels of employer contribution in future so that the assets will be sufficient to meet all expected future benefit payments from the Fund. In determining these required levels of contribution we consider the existing investment strategy and make assumptions about the expected rate of investment return from that strategy.

2.3. Being a funded scheme, the purpose of the assets is to meet future benefit payments. As long as net money in is greater than net money out, each month's contributions can be used to pay each month's benefits and the excess can be invested into non-cash assets.

2.4. Essentially assets are passed down from one generation to the next rather than assets being sold by the older generation to provide pensions and new assets purchased to meet the younger generation's future pensions.

2.5. Not only is this more efficient in terms of transaction costs of buying and selling assets but assuming the net cashflow remains positive, it is possible to take a longer term investment perspective as cashflow requirements do not cause the Fund to be a forced seller of investments.

2.6. However, this does not mean that the Fund will not be regularly selling some of their investments anyway. For example, the Fund's investment strategy is based on a certain asset allocation and, although cashflow can be directed towards keeping the allocation in line with the benchmark, sometimes assets may have to be sold to achieve this. Further, if the Fund invests in particular indices then the investment manager may automatically sell a stock or share if it drops out of the index.

2.7. Other disadvantages of being a forced seller are that it makes liquidity management harder and poor investment performance is harder to recover from.

2.8. The liquidity management issues are both in terms of cash management and portfolio management. For cash management, if you need to make a significant payment when you are net cashflow positive, you may be able to just store the surplus monies for a few months but this isn't possible when you are a net disinvestor. For portfolio management, if there are negative returns, the asset base will be diminished both by investment performance and cashflows so it needs to work harder to get back up to a comparable level.

2.9. Overall, a less mature Fund can adopt a less constrained investment strategy and invest in long term return seeking assets rather than have to worry about income generation whereas a mature Fund may be more concerned about reducing volatility and investing in income-generating assets.

2.10. On the basis that, in the long term, returns from risky assets are expected to be higher than from less risky assets, this means that an immature Fund with a less constrained investment strategy would be expected to be able to provide pensions for a lower cost than a mature Fund which has liquidity restrictions.

3. Projected Cashflows

3.1. The following table sets out the revenue accounts for the Fund for the 5 years to 31 March 2013.

Revenue Accounts	Year to	March 2013	March 2012	March 2011	March 2010	March 2009	AVERAGE
		£ (000)	£ (000)	£ (000)	£ (000)	£ (000)	£ (000)
EXPENDITURE	Retirement Pensions	127,078	117,060	103,597	98,306	87,836	106,775
	Retirement Lump Sums	28,187	37,467	36,601	26,593	21,390	30,048
	Death Benefits	3,714	3,588	3,328	2,721	2,708	3,212
	Leavers' Benefits	16,048	10,738	24,453	14,534	4,876	14,130
	Expenses	1,409	1,301	1,390	1,429	1,372	1,380
Total Expenditure (E)		176,436	170,154	169,369	143,583	118,182	155,545
INCOME	Employees' Ctbns	42,829	42,242	45,815	45,950	42,881	43,943
	Employers' Ctbns	127,132	134,907	131,003	129,230	115,384	127,531
	Transfer Values	11,535	10,197	16,570	16,378	10,070	12,950
Total Non Investment Income (I)		181,496	187,346	193,388	191,558	168,335	184,425
Net New Money for Investment (I - E)		5,060	17,192	24,019	47,975	50,153	28,880
Investment Income (D)		84,221	80,285	73,896	73,599	78,153	78,031
Cashflow (I - E + D)		89,281	97,477	97,915	121,574	128,306	106,911
Assets at End of Year		3,496,446	3,072,296	3,007,807	2,731,826	2,022,367	
Income Yield		2.6%	2.6%	2.6%	3.1%	3.5%	2.9%

3.2. As we see contribution income (I) less benefit expenditure (E) averaged £28.9m per annum over the 5 years and cashflow averaged £106.9m per annum.

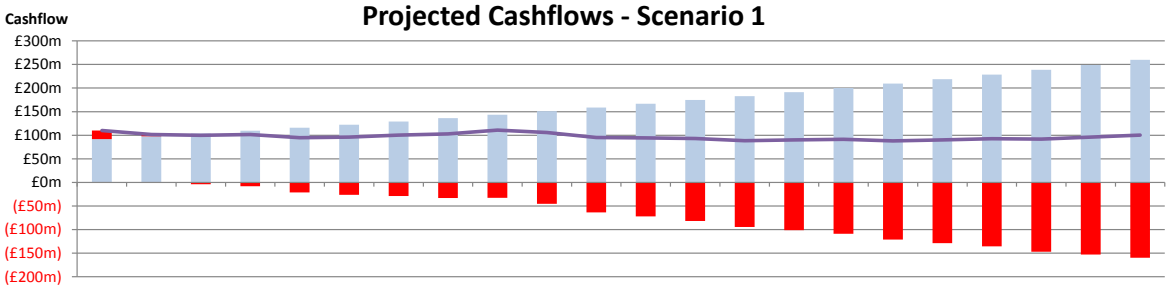
3.3. Using the 2013 valuation results, we have modelled future cashflows from April 2013 to determine if and when cashflow may turn negative.

3.4. Note that in the valuation we do not make any assumptions about early retirements as such retirements as assumed to be cost neutral due to additional “strain” contributions from the employer. Such retirements will therefore generate more benefit payments, particularly in the year of retirement due to the lump sum paid, but also generate more contribution income. For the purposes of these projections and given the difficulty of predicting such retirements, we have ignored such retirements in both the projections of benefits paid and additional employer contributions received.

Scenario 1 – Stable active membership

3.5. The following chart shows the projected net new money and cashflow for the next 20 years assuming the number of active members (in fact pensionable payroll in real terms) remains at the same level as at March 2013 - using the same assumptions as adopted for the initial results of the 2013 valuation. The additional assumption used is the income yield from investments which is assumed to be 2.6% per annum in line with the income yield for the year to 31 March 2013.

3.6. It also assumes that employer contributions will be re-assessed every 3 years, a deficit recovery period of 20 years and that the deficit recovery period will be "rolled over" rather than reduced to the balance of the 2013 recovery period.

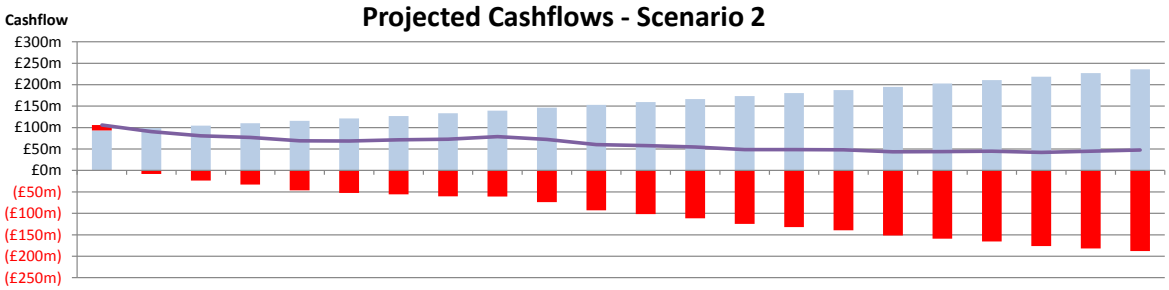


Year to March	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Net New Money	£18m	£4m	(£4m)	(£8m)	(£21m)	(£26m)	(£29m)	(£33m)	(£33m)	(£45m)	(£64m)	(£72m)	(£82m)	(£95m)	(£101m)	(£109m)	(£121m)	(£129m)	(£136m)	(£147m)	(£153m)	(£160m)
Investment Income	£92m	£98m	£104m	£110m	£116m	£122m	£129m	£136m	£143m	£151m	£159m	£167m	£175m	£183m	£191m	£200m	£209m	£219m	£228m	£239m	£249m	£260m
Cashflow	£110m	£102m	£100m	£102m	£95m	£96m	£100m	£103m	£111m	£106m	£95m	£94m	£93m	£88m	£90m	£91m	£88m	£90m	£93m	£92m	£96m	£100m

3.7. As we see net new money is expected to turn negative in the year to March 2015 and remain negative thereafter. However cashflow still remains positive throughout the projection period as there is sufficient investment income to meet the net liability payment requirements.

Scenario 2 – 20% reduction in active membership

3.8. In scenario 2 we modify scenario 1 and assume that the pensionable payroll will reduce by 20% over the next 3 years. This projected cashflows are then as follows:

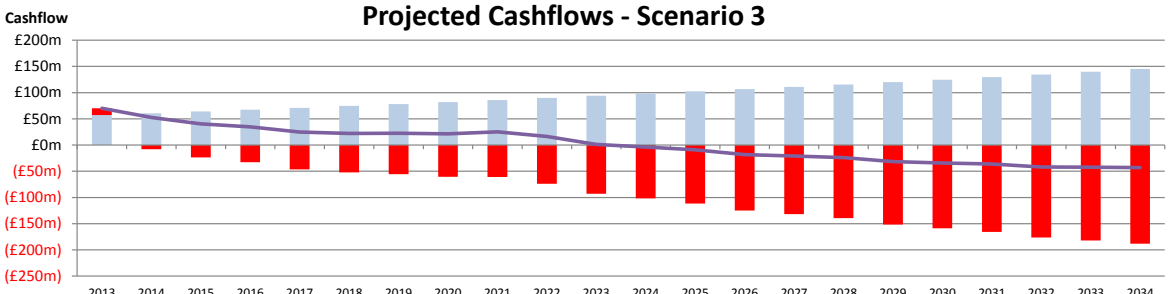


Year to March	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Net New Money	£13m	(£8m)	(£24m)	(£33m)	(£46m)	(£52m)	(£56m)	(£60m)	(£61m)	(£74m)	(£93m)	(£102m)	(£112m)	(£125m)	(£132m)	(£139m)	(£152m)	(£159m)	(£166m)	(£176m)	(£182m)	(£188m)
Investment Income	£93m	£99m	£104m	£110m	£116m	£121m	£127m	£133m	£140m	£146m	£153m	£160m	£166m	£173m	£180m	£188m	£195m	£203m	£211m	£219m	£227m	£236m
Cashflow	£106m	£91m	£81m	£77m	£69m	£69m	£71m	£73m	£79m	£73m	£60m	£58m	£55m	£48m	£48m	£48m	£43m	£44m	£45m	£42m	£45m	£48m

3.9. As we see whilst there is a sharper decline in new money and cashflow, the cashflow still remains positive throughout the projection period.

Scenario 3 – Scenario 2 plus 1% reduction in income yield

3.10. We now modify scenario 2 to include a reduction of 1% in income yield from 2.6% to 1.6% which results in the following:

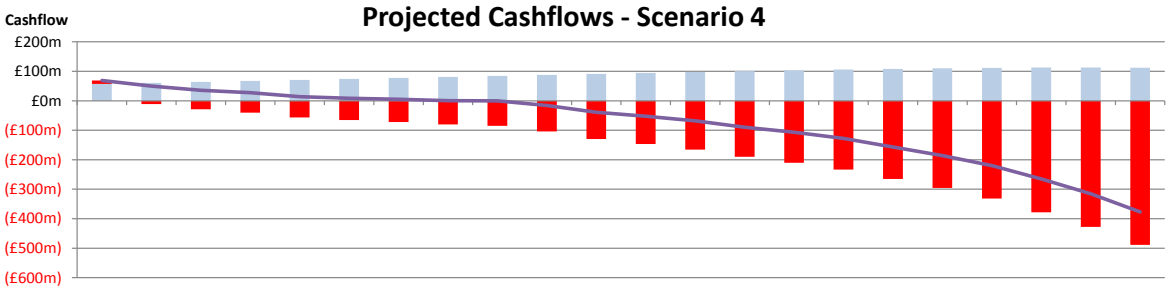


Year to March	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Net New Money	£13m	(£8m)	(£24m)	(£33m)	(£46m)	(£52m)	(£56m)	(£60m)	(£61m)	(£74m)	(£93m)	(£102m)	(£112m)	(£125m)	(£132m)	(£139m)	(£152m)	(£159m)	(£166m)	(£176m)	(£182m)	(£188m)
Investment Income	£57m	£61m	£64m	£68m	£71m	£75m	£78m	£82m	£86m	£90m	£94m	£98m	£102m	£107m	£111m	£115m	£120m	£125m	£130m	£135m	£140m	£145m
Cashflow	£70m	£53m	£41m	£35m	£25m	£22m	£23m	£22m	£25m	£16m	£1m	(£4m)	(£9m)	(£18m)	(£21m)	(£24m)	(£32m)	(£34m)	(£36m)	(£42m)	(£42m)	(£43m)

3.11. Under this scenario the cashflow eventually turns negative in 2024.

Scenario 4 – Scenario 3 plus CPI inflation 1% higher

3.12. We now modify scenario 3 and assume CPI inflation is 1% higher than assumed at the 2103 valuation. This results in:



Year to March	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Net New Money	£12m	(£11m)	(£29m)	(£40m)	(£57m)	(£66m)	(£72m)	(£81m)	(£85m)	(£104m)	(£130m)	(£147m)	(£166m)	(£190m)	(£210m)	(£234m)	(£265m)	(£296m)	(£332m)	(£378m)	(£428m)	(£489m)
Investment Income	£57m	£61m	£64m	£67m	£71m	£74m	£77m	£81m	£84m	£88m	£91m	£94m	£98m	£101m	£103m	£106m	£108m	£110m	£112m	£113m	£113m	£112m
Cashflow	£69m	£50m	£35m	£27m	£14m	£8m	£5m	£0m	(£1m)	(£16m)	(£39m)	(£52m)	(£68m)	(£90m)	(£107m)	(£128m)	(£157m)	(£186m)	(£220m)	(£266m)	(£315m)	(£377m)

3.13. As we see this brings forward the cashflow turning negative year to 2021 but then there is an acceleration in the decrease in cashflow to quite significant levels.

4. Conclusions

4.1. In the year to 31 March 2013 the Fund paid out marginally less in benefits than it received in income from employers and employees who contribute to the Fund. However this net new money is expected to turn negative very shortly and remain so thereafter. However investment income is projected to be sufficient to meet the shortfall for the foreseeable future.

4.2. However a combination of further public sector cuts, member opt-outs or outsourcing which reduces the pensionable payroll could bring forward the date when the Fund has to use assets to meet benefit payments. However even a 20% reduction from current levels would mean this time is still well into the future.

4.3. More significantly, a reduction in payroll and a reduction in investment income yield of 1% in absolute terms (approximately a third in relative terms) would mean the Fund would have to start selling assets to meet benefit payments in 2024.

4.4. Finally if inflation was also 1% higher than currently assumed this would bring forward this date to 2021.

4.5. In conclusion therefore we anticipate that the Fund is close to or already in a position of having to use some of its investment income to meet benefit payments – which is the current position across the LGPS as a whole.

4.6. However it would take a combination of a reduction in payroll and investment yield and also higher inflation to result in the Fund having to sell assets to meet benefit payments in the medium term (in around 10 years' time).

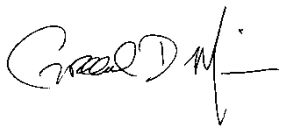
4.7. The key risks that would bring forward the date of forced asset sales include;

- A more significant reduction in income yield – companies reducing dividends and/or lower interest rates/bond yields.
- Significant numbers of early retirements or ill health retirements resulting in more pensions in payment and lump sums payable.
- A bigger reduction in the active membership and pensionable payroll due to high levels of redundancy or opt out or outsourcing where new staff do not join the LGPS.
- Significant numbers of active members opting for the 50/50 option.

4.8. This Fund is slightly less mature than the average LGPS fund and so compared with the average fund the projected date of forced assets sales is still some way off.

4.9. However we suggest the position is kept under review as the position could change quite quickly.

4.10. We would be pleased to answer any questions arising from this report.



Graeme D Muir FFA
Partner