AVON PENSION FUND

2016 ACTUARIAL VALUATION

– TRAINING AND INTERIM FUNDING REVIEW

12 October 2015

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AGENDA

PART 1 – ACTUARIAL VALUATION TRAINING

- Background
- Purpose of an Actuarial Valuation
- Actuarial Assumptions and Liability Calculations
  - Inflation
  - Salary Growth
  - Discount Rate
  - Demographic Assumptions
- Funding Strategy
- Scheme Employers

PART 2 – FUNDING REVIEW AND PLANNING FOR 2016 ACTUARIAL VALUATION

- Recap – 2013 Valuation and Funding Strategy
- 2015 Interim Review
- 2016 Actuarial Valuation – issues to consider and next steps

BACKGROUND
FUNDING CHALLENGES

AUSTERITY AND SECTOR CHANGES

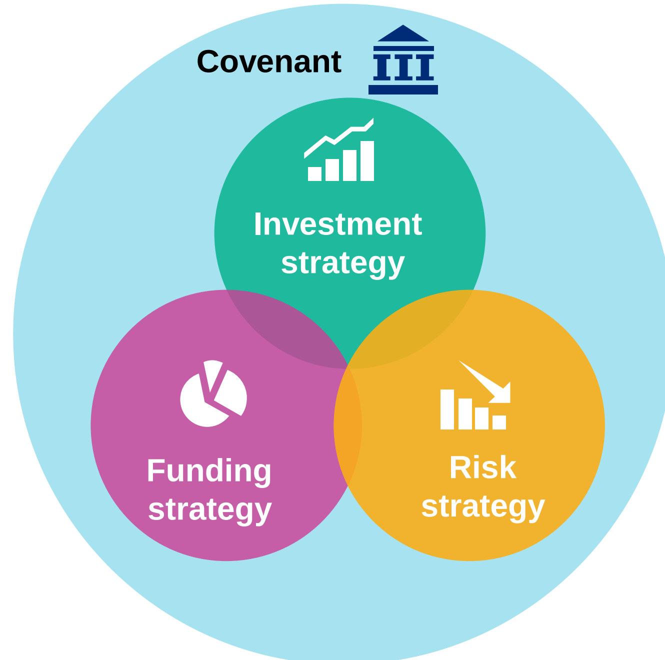
CHANGING MATURITY/ EMPLOYER NUMBERS

GREATER NATIONAL SCRUTINY

NATIONAL BENCHMARKING

ASSET POOLING

EVOLVING RISK MANAGEMENT POLICIES



STRONG, CLEAR ADVICE AND GOVERNANCE WILL BE KEY

FINANCIALS – INDIVIDUAL COUNCILS?

UPWARD COST PRESSURES

2011 2014 2017?

CONTRIBUTION RATES

% OF MEMBERSHIP PAYROLL INCREASING

% OF COUNCIL BUDGET INCREASING

DEFICITS

BUDGET CUTS

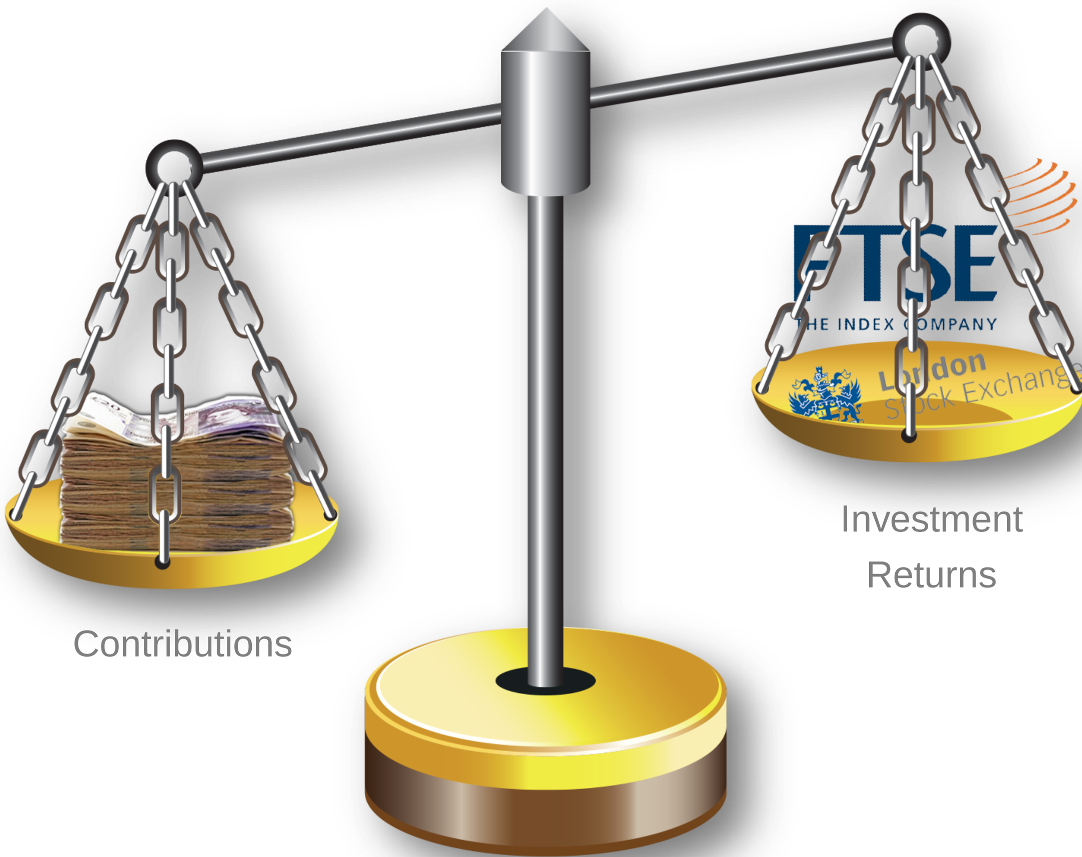
AFFORDABILITY WILL BE KEY

PURPOSE OF AN ACTUARIAL VALUATION

PURPOSE OF AN ACTUARIAL VALUATION
FINANCING THE BENEFITS

Lower contributions

Higher contributions



Lower Returns

Higher Returns

OBJECTIVE: IS TO HAVE SUFFICIENT ASSETS TO PAY BENEFITS AS AND WHEN THEY FALL DUE.

THE FUND'S RETURNS VS CPI

- Broadly speaking, there are two measures in which the Fund's returns need to "beat" CPI to reduce long term costs and therefore contribution requirements:

Long term CPI expectations

- Impacts the value placed on the Fund's liabilities.
- Drives contribution rates and the amount the Fund needs to hold in reserves as part of the long term funding arrangements.
- The Fund requires long term investment returns in excess of CPI

Short term (year-on-year) CPI changes

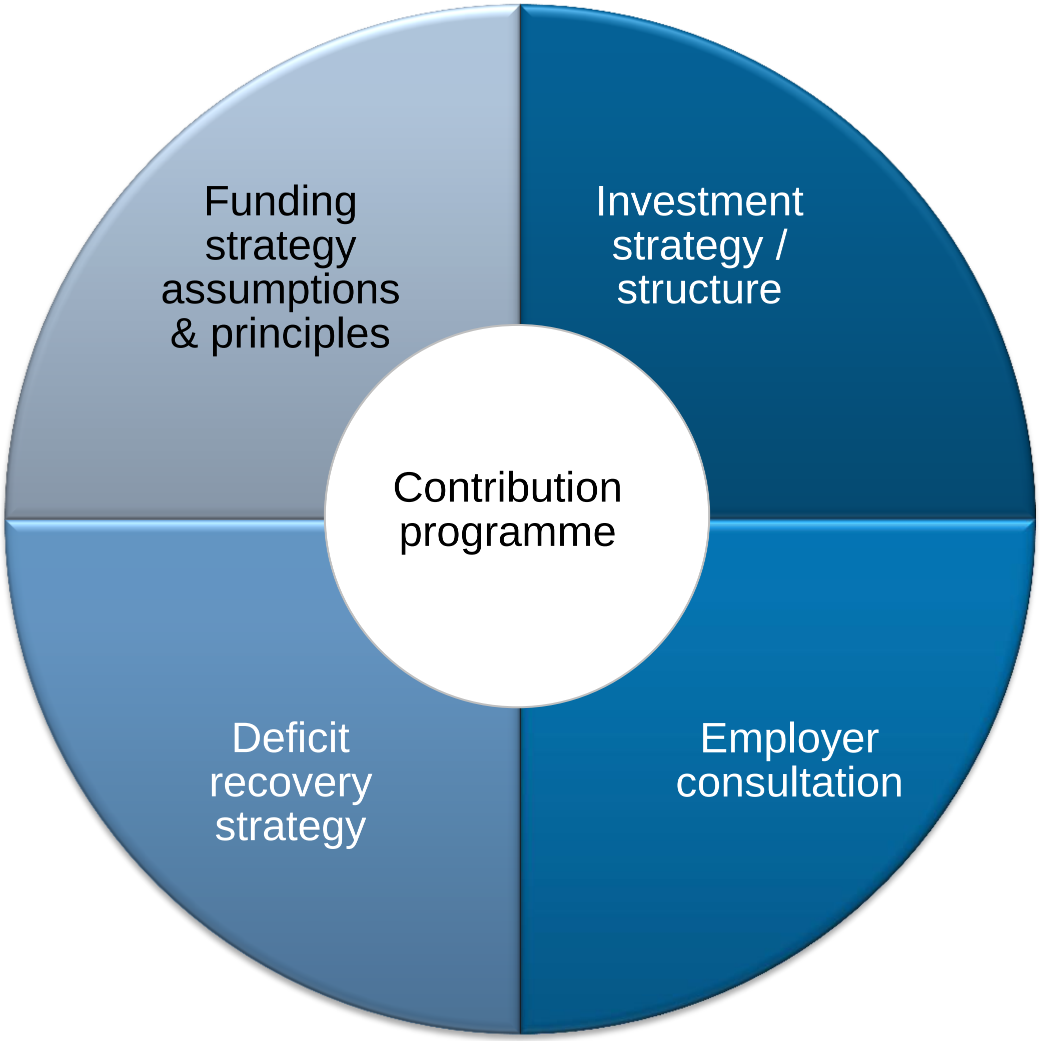
- Impacts the increase to members' pensions each year.
- There will inevitably be short term fluctuations between movements in CPI and the Fund's short term asset returns.

WHY DO A VALUATION?

Has the Fund got enough assets to cover expected benefits built up to date

How much will the Employers have to pay to for benefits earned in the future?

PURPOSE OF AN ACTUARIAL VALUATION
REVIEW OF CONTRIBUTIONS



THE LGPS FUNDING REGIME - KEY GOVERNANCE DOCUMENTS

Overall financial position	Appropriate contributions	Communication with Employers/ members
Funding Strategy Statement	Rates and Adjustments Certificate	FSS/ Valuation report
Valuation report	Recovery plan	Actuarial Statement

The liabilities are an estimate of the cost of providing the benefits built up by members to the valuation date based on prudent assumption as required by the Regulations and guidance.

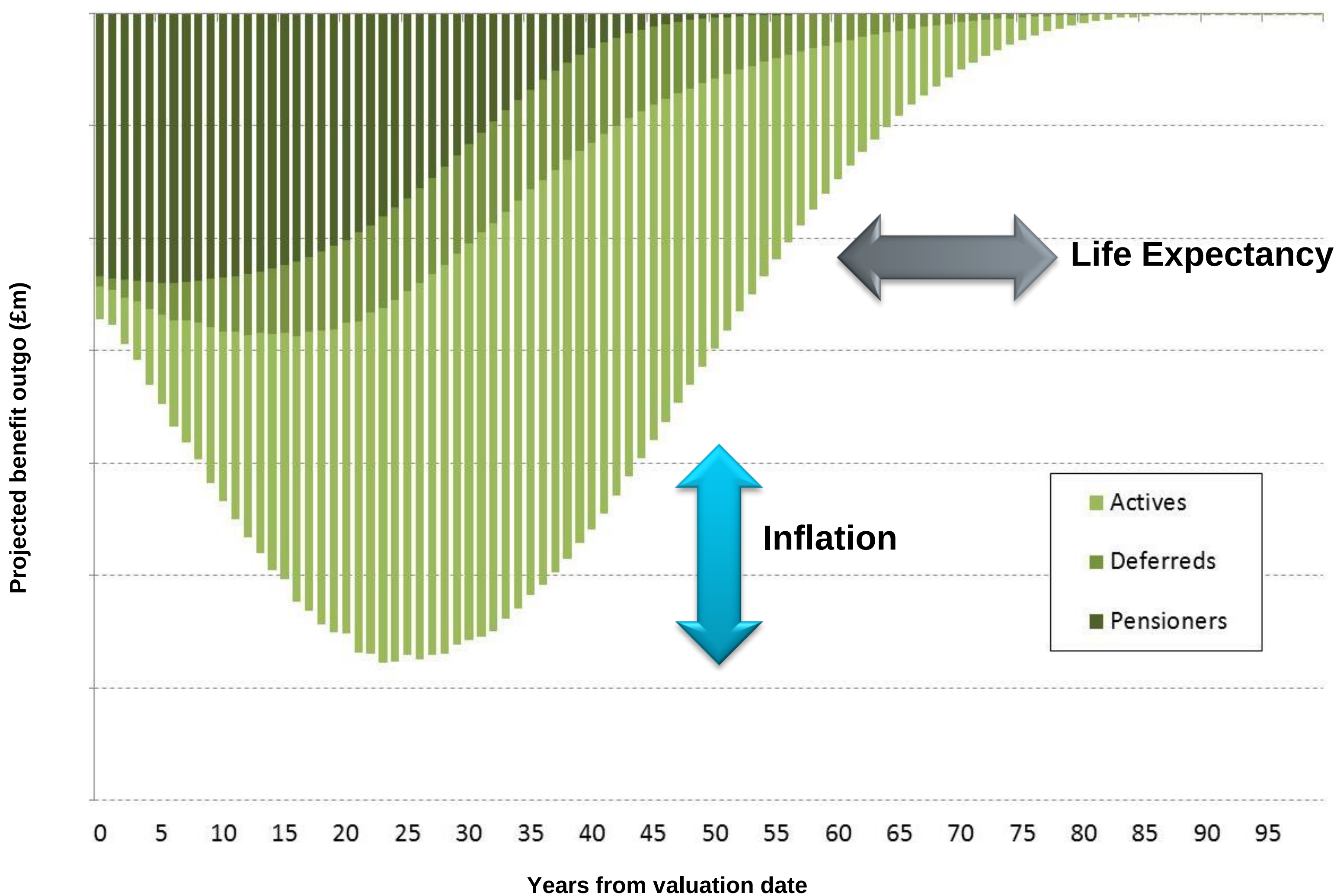
ACTUARIAL ASSUMPTIONS AND LIABILITY CALCULATIONS

ASSUMPTIONS AND LIABILITY CALCULATIONS
BENEFITS BEING VALUED

Benefit changes from 1 April 2014

Pre 2014 benefits	Post 2014 benefits
Normal retirement age 65	Normal retirement age SPA
Mix of $1/60^{ths}$ and $1/80^{ths}$,$3/80^{ths}$ Final Salary	49ths CARE Scheme plus 50:50 option
Pay excl. overtime	Pay incl. overtime
Rule of 85 protections	Further protections and underpins

FUNDING – IT IS ALL ABOUT BENEFIT CASH FLOWS



ASSUMPTIONS AND LIABILITY CALCULATIONS

PAST SERVICE BENEFITS

Deficit

Assets

Liabilities

FUTURE SERVICE BENEFITS

Contribution impact

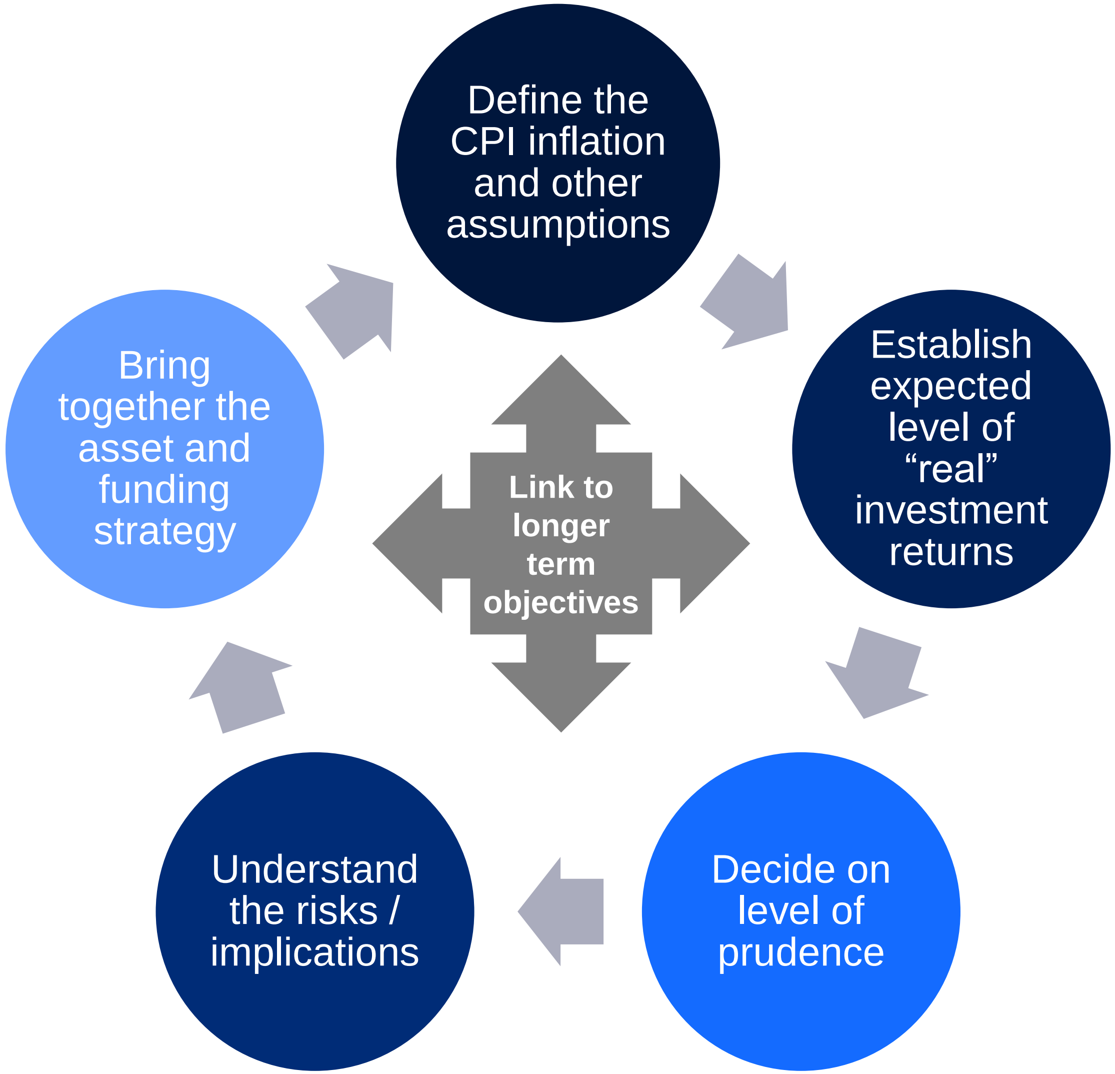
Deficit spread over agreed "Recovery Period"

Contribution impact

Cost of 1 year's service

"Future service contribution rate"

DISCOUNT RATE AND OTHER ASSUMPTIONS
PRINCIPLES OF METHODOLOGY



ASSUMPTIONS AND LIABILITY CALCULATIONS
PRUDENCE - DIFFERENT POINTS OF VIEW?

ASSUMPTIONS AND LIABILITY CALCULATIONS
CHANGING THE ASSUMPTIONS

Actual cost of benefits will not be known until after all benefits paid

Assumptions estimate this cost, but do not change the actual cost

Changing assumptions

↓

Changes the estimate

FINANCIAL ASSUMPTIONS

INFLATION RATE – OUR APPROACH

Comments

- **Market RPI inflation : average derived from market implied projection of year on year RPI inflation based on Government Bonds**
- **Deduction made for any adjustment made to market rates and the difference between RPI and CPI indices**
- **Typical deduction 1-1.3%. 2013 valuation deduction was 1% p.a.**

ASSUMPTIONS IN DETAIL
PAY INCREASE RATE – PRE 2014 BENEFITS

Comments

- **Real pay growth includes pay increments**
- **Long term real pay growth assumption of 1.5% pa BUT**
- **We should allow for known short term adjustments eg. allow for continuing public sector pay restraint e.g. 2015 Budget announced further restraint of 1% for 4 years.**
- **Also consider building in employer specific adjustments.**

ASSUMPTIONS IN DETAIL
DISCOUNT RATE/ASSET RETURNS

Comments
• Discount Rate/Asset Return built up from expectations on different asset classes held • Expected Real Return: Derive as the real return above CPI inflation based on long term strategic goals • Allow for long term strategic goals and prudence in setting the discount rate.

DISCOUNT RATE/ASSET RETURN
LEVEL OF PRUDENCE- “HURDLE” RATE

National Benchmark discount rate assumption

CPI + 3.0%

EXPECTED RETURNS ABOVE CPI

CPI + 1-1.5%
Example
lower return
High probability of success

(2 in 3 chance)

CPI + 2.2%
2013 discount rate

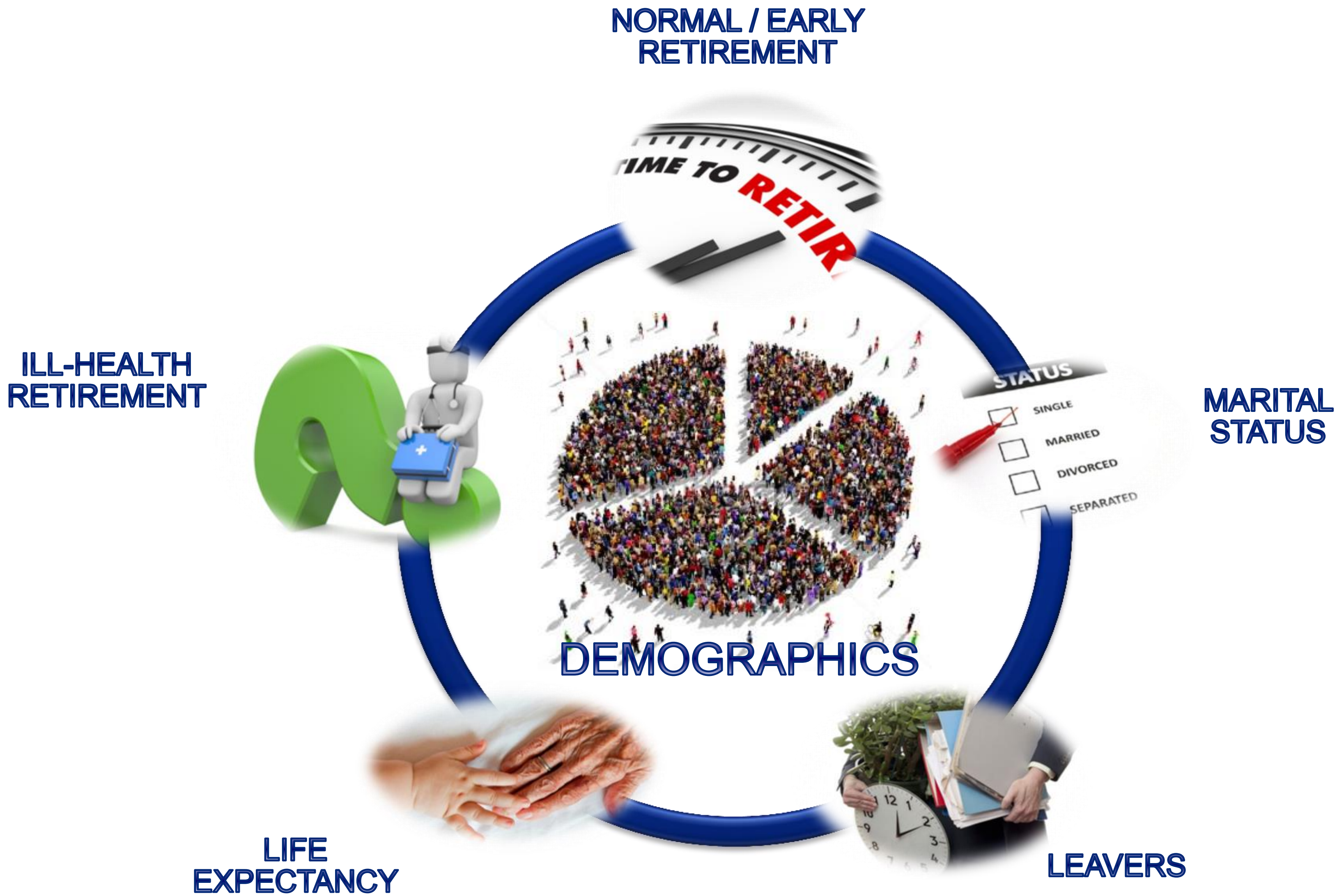
CPI + 3-4%
Example 50% chance of success

(1 in 2 chance)

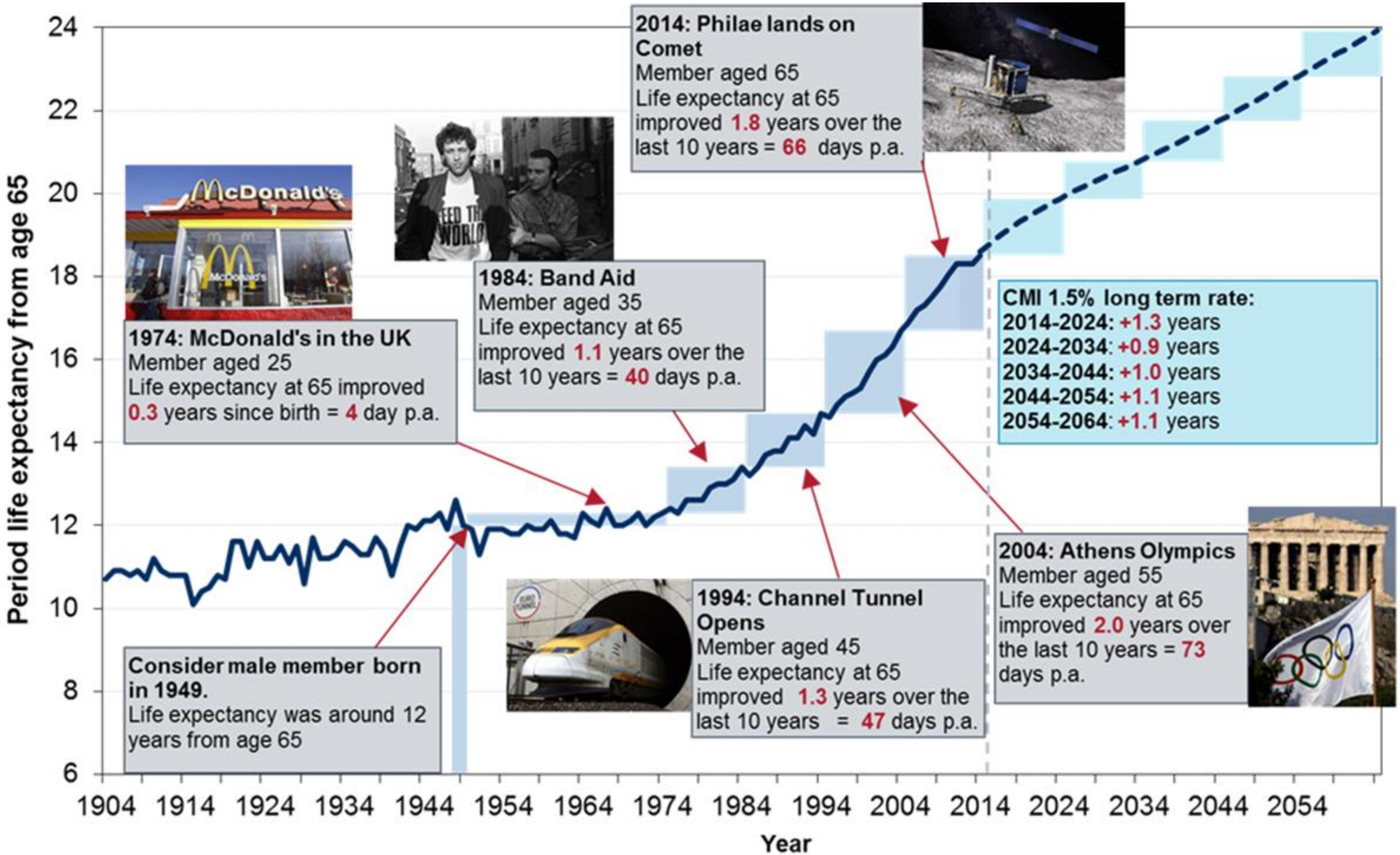
Best estimate

Margin for prudence

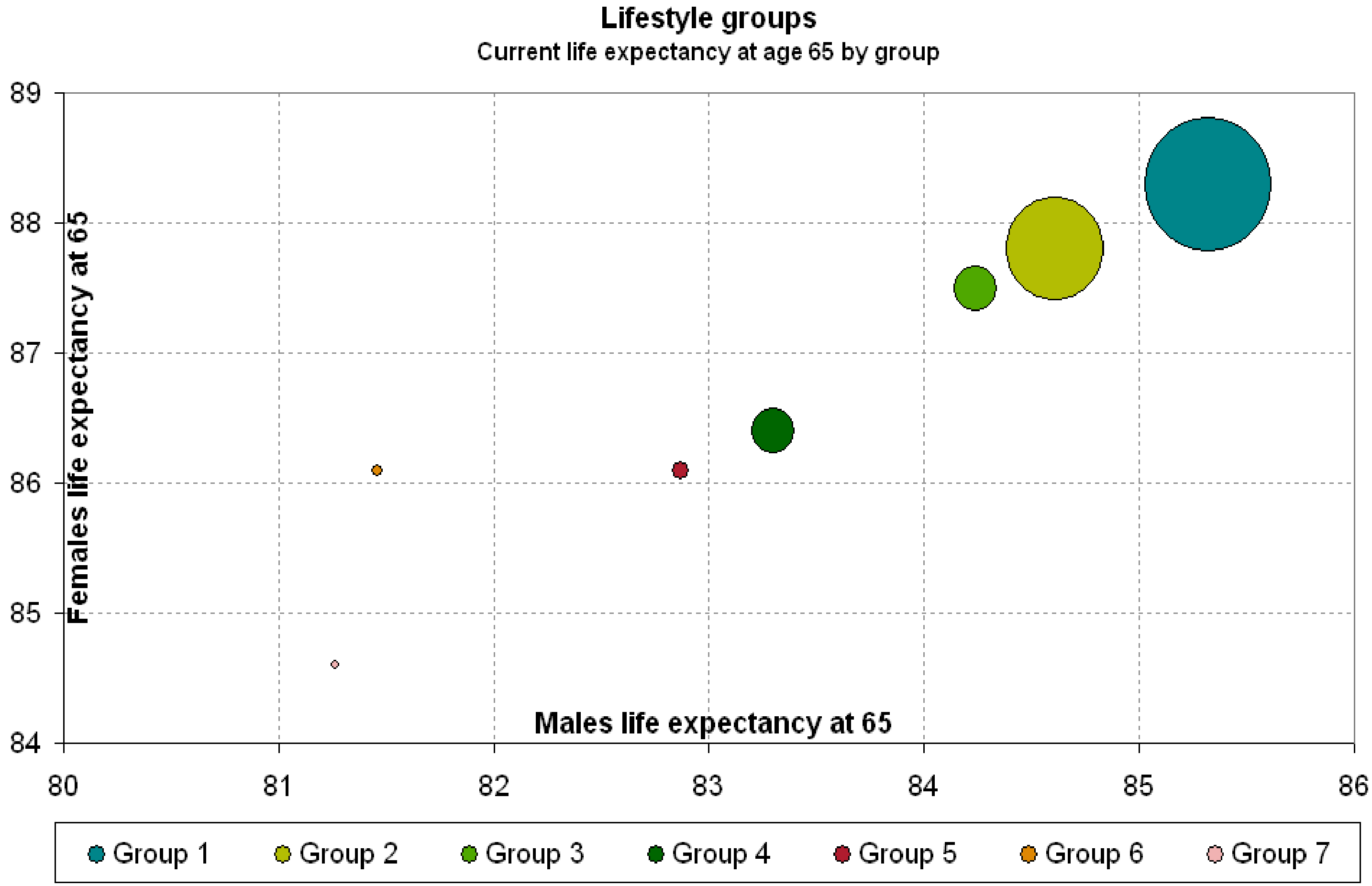
ASSUMPTIONS AND LIABILITY CALCULATIONS
DEMOGRAPHIC ASSUMPTIONS



PEOPLE ARE LIVING LONGER
PAST IMPROVEMENTS (MALES AGE 65)



MORTALITY – FUND SPECIFIC POSTCODE ANALYSIS



There are around 1.8 million distinct postcodes in use in the United Kingdom, resulting in an average of around 15 houses per postcode.

LIFE EXPECTANCY
SOUTH WEST REGION VS APF MEMBERSHIP

	Males		Females	
	Life expectancy at age 65	Rank in England and Wales	Life expectancy at age 65	Rank in England and Wales
Bath and North East Somerset UA	**19.6**	**69**	**21.9**	**90**
Bournemouth UA	18.6	196	21.0	206
Bristol, City of UA	**17.9**	**276**	**20.9**	**226**
Cornwall UA	18.9	163	21.3	167
North Somerset UA	**19.3**	**122**	**21.5**	**147**
Plymouth UA	18.2	239	20.6	259
Poole UA	19.4	84	21.8	110
South Gloucestershire UA	**19.6**	**61**	**22.0**	**78**
Swindon UA	18.4	224	20.8	229
Torbay UA	19.0	155	21.1	200
Wiltshire UA	19.5	81	21.8	112
East Devon	20.0	26	22.1	68
Exeter	18.5	207	22.2	60
Mid Devon	19.9	36	23.0	12
North Devon	19.2	133	21.3	174
South Hams	20.0	29	22.5	34
Teignbridge	19.0	158	22.1	67
Torridge	19.0	151	21.2	180
West Devon	19.2	130	21.8	107
Christchurch	20.6	10	23.4	7
East Dorset	20.8	5	23.5	4
North Dorset	19.9	35	23.1	11
Purbeck	20.1	24	22.8	21
West Dorset	19.9	41	22.3	49
Weymouth and Portland	19.2	136	21.4	157
Cheltenham	19.4	87	22.0	77
Cotswold	20.0	27	22.8	19
Forest of Dean	18.5	213	21.5	148
Gloucester	18.2	246	21.2	179
Stroud	18.9	173	20.8	238
Tewkesbury	18.8	174	22.2	66
Mendip	19.4	95	22.0	74
Sedgemoor	19.5	76	22.1	72
South Somerset	19.8	44	22.2	63
Taunton Deane	19.2	131	21.2	182
West Somerset	19.4	92	22.8	20

Source: Office of National Statistics for years 2011-13

Mortality assumptions adopted for the 2013 actuarial valuation result in life expectancies of 23.2 years for males and 25.7 for females

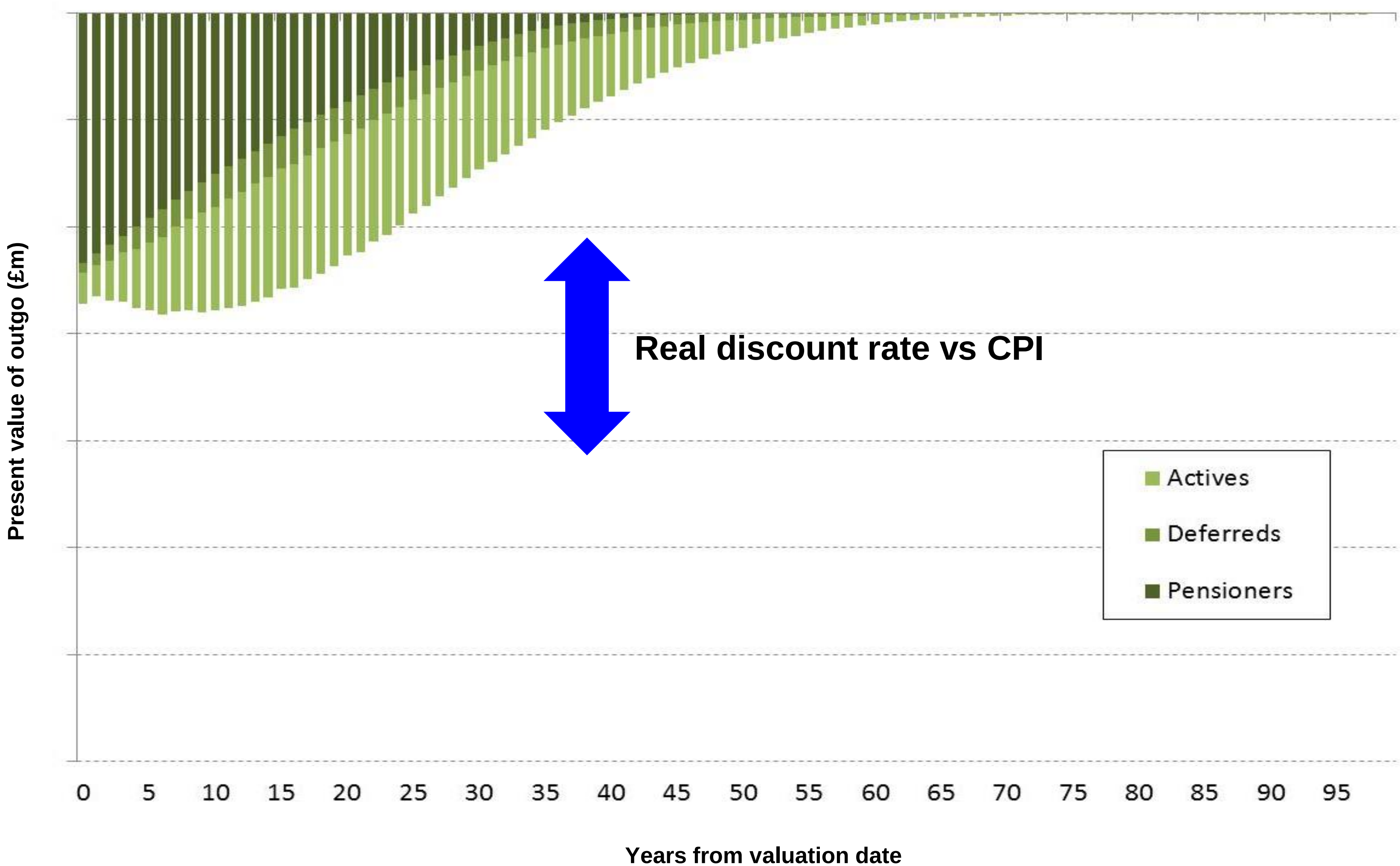
BASIC PRINCIPLES

Benefit formula X **Probability of benefit payment arising** X **CPI increases of date of payment** X **Cost of providing pension**

Discounted back to valuation date

Summed over **ALL** benefits and **ALL** existing and former members and dependants

LIABILITY CALCULATION
DISCOUNTED VALUE



FUNDING STRATEGY

What is the Funding Strategy?

Reg. 62(6)(b) **"The actuary must have regard .... to the desirability of maintaining as nearly a *constant common rate* as possible".**

Reg. 62(6)(d) **"The actuary must have regard to the requirement to..... to *secure the solvency of the Fund* and the *long term cost efficiency** of the Scheme…"**

*** New from 2016 valuation**

REQUIREMENTS AND OBJECTIVES

DCLG

"Support regulatory requirement to maintain constant employer contribution rates"

Encourage administering authorities to take a prudent longer-term view of their liabilities"

Purpose of the FSS

Clear and transparent strategy to meet employers' pension liabilities

- Support stability in contribution rates *as far as possible*
- Prudent approach in funding the liabilities

FUNDING STRATEGY AND CONTRIBUTION REQUIREMENTS
EMPLOYER CONSULTATION

All Fund employers should be consulted.

Process for consultation will be decided by the Administering Authority.

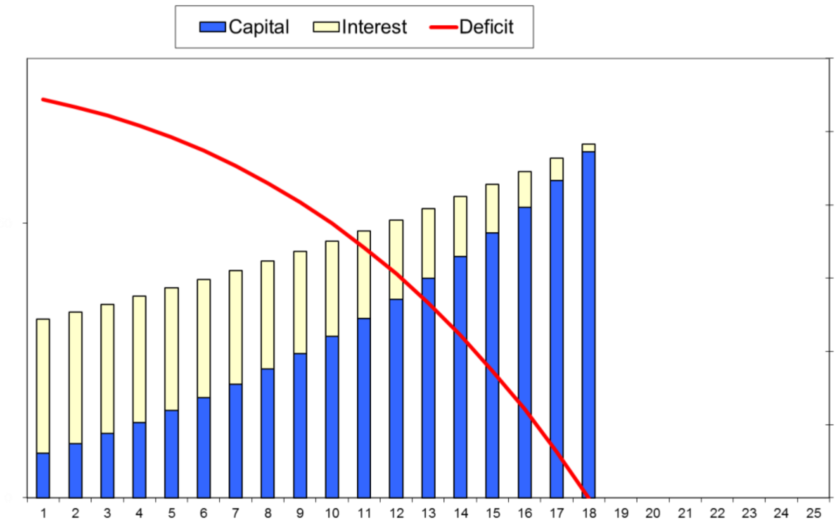
Consideration must be given to employers' views.

But ....

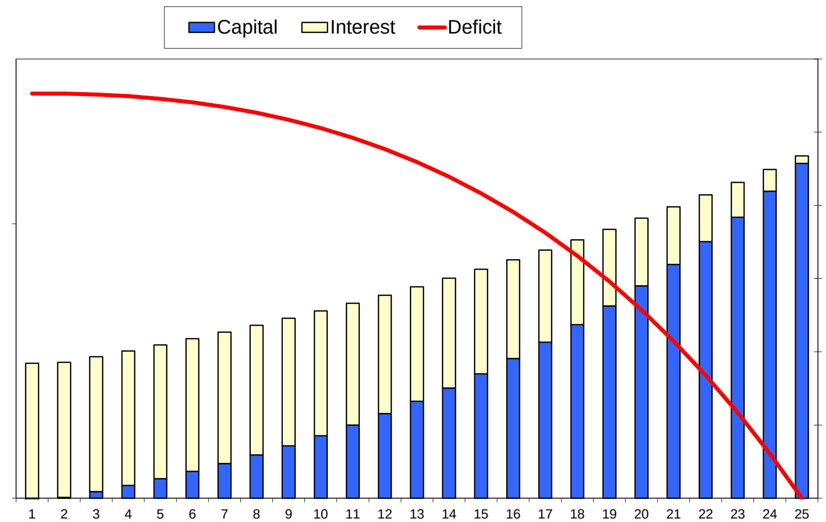
Ultimate responsibility rests with the Administering Authority.

FUNDING STRATEGY AND CONTRIBUTION REQUIREMENTS
EXAMPLE RECOVERY PERIOD

18 years



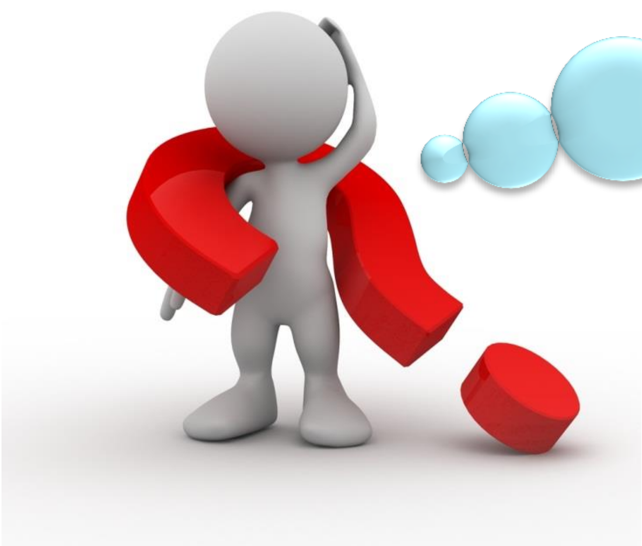
25 years



A key aspect of determining a deficit recovery strategy is the recovery period. The longer the recovery period the more debt "interest" is payable.

FUNDING STRATEGY AND CONTRIBUTION REQUIREMENTS
ISSUES TO BE ADDRESSED IN FSS

- ✓ Time horizon for funding plan
- ✓ Link between funding strategy and investment
- ✓ Fund and Employer Policies
- ✓ Risks to the funding strategy
- ✓ Monitoring and review of the strategy
- ✓ Financial standing of employers and impact on funding assumptions



SCHEME EMPLOYERS

SCHEME EMPLOYERS
DIFFERENT EMPLOYERS IN THE FUND

SCHEDULED BODIES

Councils,
Universities, Colleges
Fire / Police Authorities, etc.

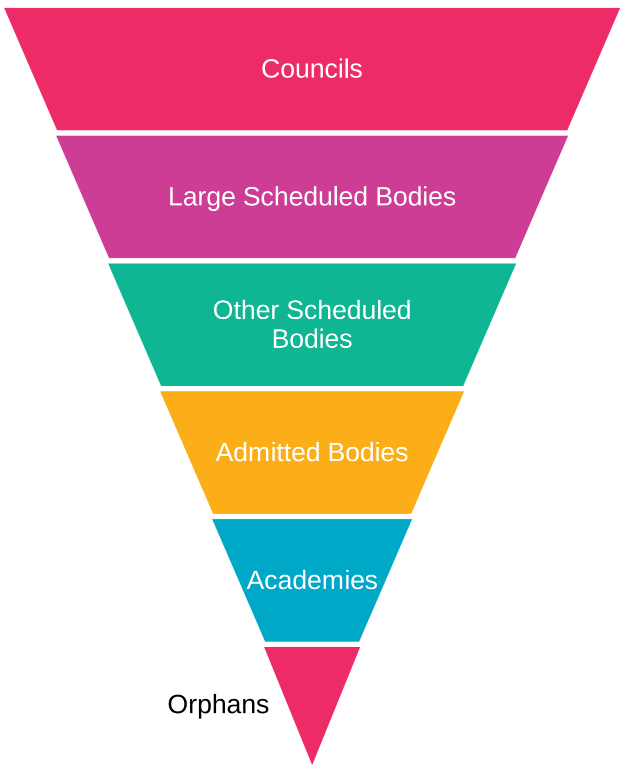
ADMITTED BODIES

Outsourcing contractors
Charitable bodies
Housing associations, etc.

EMPLOYERS HAVE DIFFERENT **CHARACTERISTICS** AND **OBJECTIVES**

MANAGING EMPLOYERS

TYPES OF EMPLOYERS



KEY EMPLOYER FEATURES:

- FUNDING LEVEL
- SIZE & MATURITY
- COVENANT
- EMPLOYER OBJECTIVES

SETTING EMPLOYER CONTRIBUTIONS:

- INVESTMENT STRATEGY
- AFFORDABLE
- PAYMENTS
- RECOVERY PERIODS
- RISK MANAGEMENT /PROTECTION

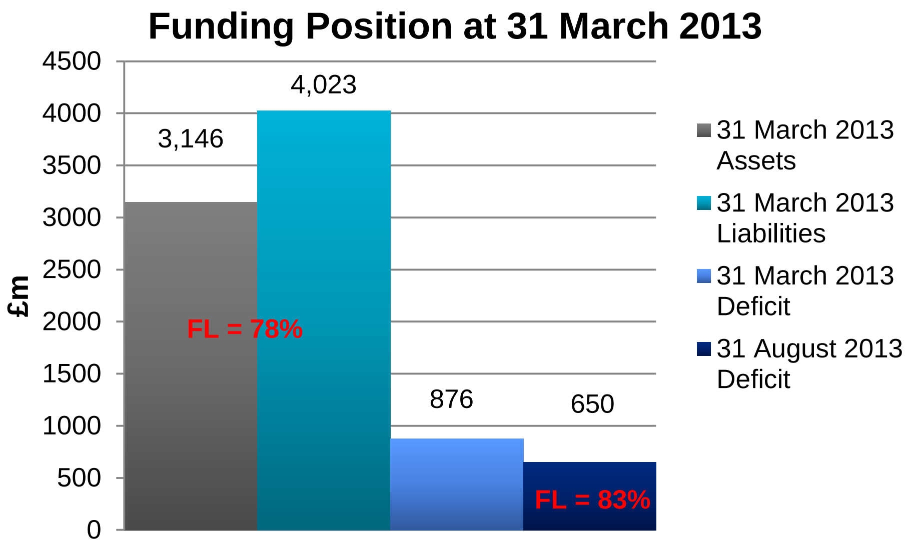
RECAP – 2013 VALUATION AND FUNDING STRATEGY

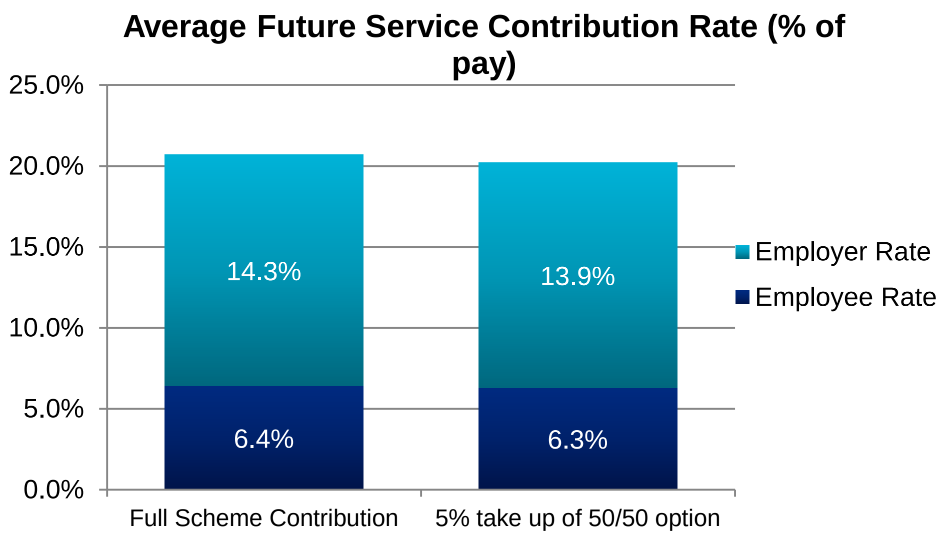
2013 VALUATION AND FUNDING STRATEGY
RECAP – KEY FINANCIAL ASSUMPTIONS

	31 March 2013	31 August 2013
CPI Inflation	2.6% p.a.	2.6% p.a.
Discount rate for past benefits (Gilts +1.6% p.a.)	4.8% p.a. (= CPI + 2.2% p.a.)	5.2% p.a. (= CPI + 2.6% p.a.)
Discount rate for future benefits (CPI +3.0% p.a.)	5.6% p.a.	5.6% p.a.
Salary Increases - Long Term - Short Term	4.1% p.a. 1.0% p.a. to 2015	4.1% p.a. 1.0% p.a. to 2015

Final recovery contributions were based on the 31 August 2013 funding position due to the material market shift

2013 RESULTS- RECAP
WHOLE FUND



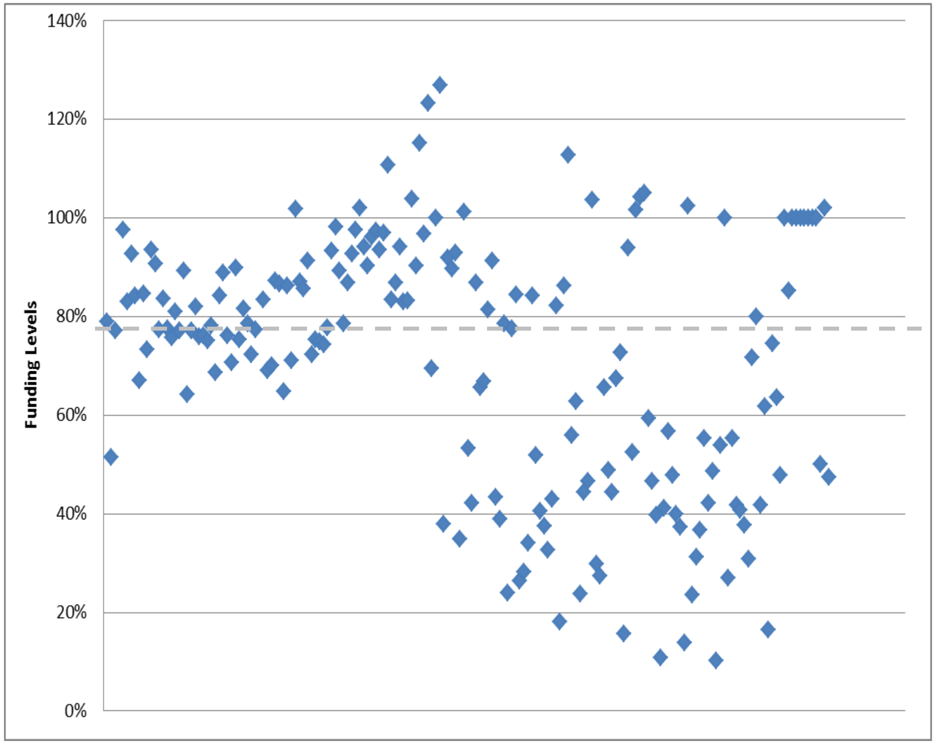


Current average future service contributions (13.9% of pay) = c£81m pa	
Average Recovery period (Whole Years)	Certified Average Deficit Payment (increasing with assumed pay growth)
20	2015/16 - £39m 2016/17 - £41m 2017/18 - £43m
Total average contributions in 2015/16 = c£120m	

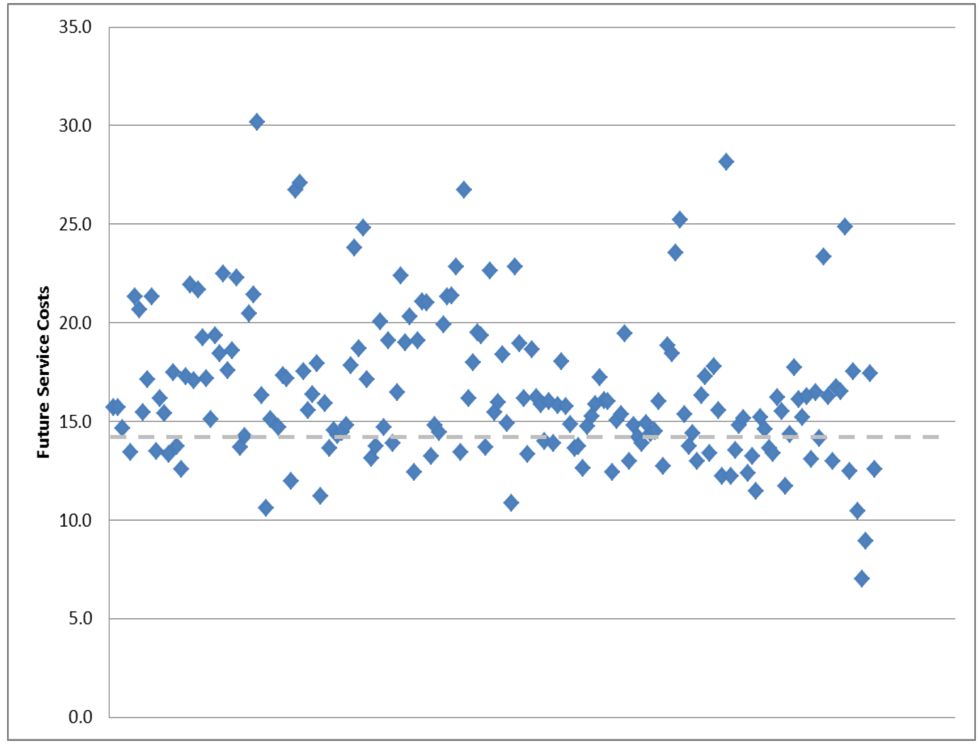
Note: Future service contributions are based on a payroll of £580m and we have ignored the deficit prepayments made for ease of comparison with update results

2013 VALUATION - INDIVIDUAL EMPLOYERS
RANGE OF OUTCOMES

Funding levels



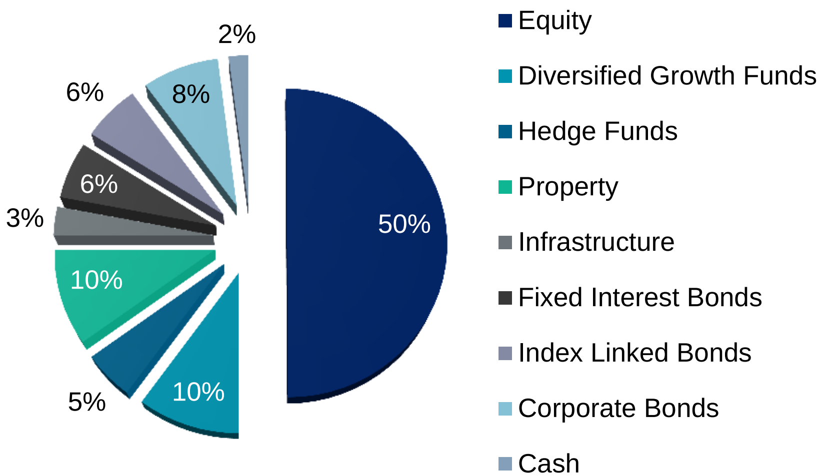
Future service rates



2015 INTERIM REVIEW

CURRENT EXPECTED INVESTMENT RETURNS

Your strategic asset allocation



Asset Class	Best Estimate Expected Real Return vs CPI
Equities	CPI + 4.6% p.a.
Diversified Growth Funds	CPI + 3.8% p.a.
Hedge Funds	CPI + 2.4% p.a.
Property	CPI + 3.0% p.a.
Infrastructure	CPI + 4.3% p.a.
Corporate Bonds	CPI + 1.0% p.a.
Government Bonds	CPI + 0.1% p.a.
Overall Median	**CPI + 3.4% p.a.**

Range of outcomes

Chance of achieving return	Expected Real Return
50%	CPI + 3.4% p.a.
55%	CPI + 3.0% p.a.
60%	CPI + 2.5% p.a.
65%	CPI + 1.9% p.a.
70%	CPI + 1.3% p.a.
75%	CPI + 0.7% p.a.

More prudent

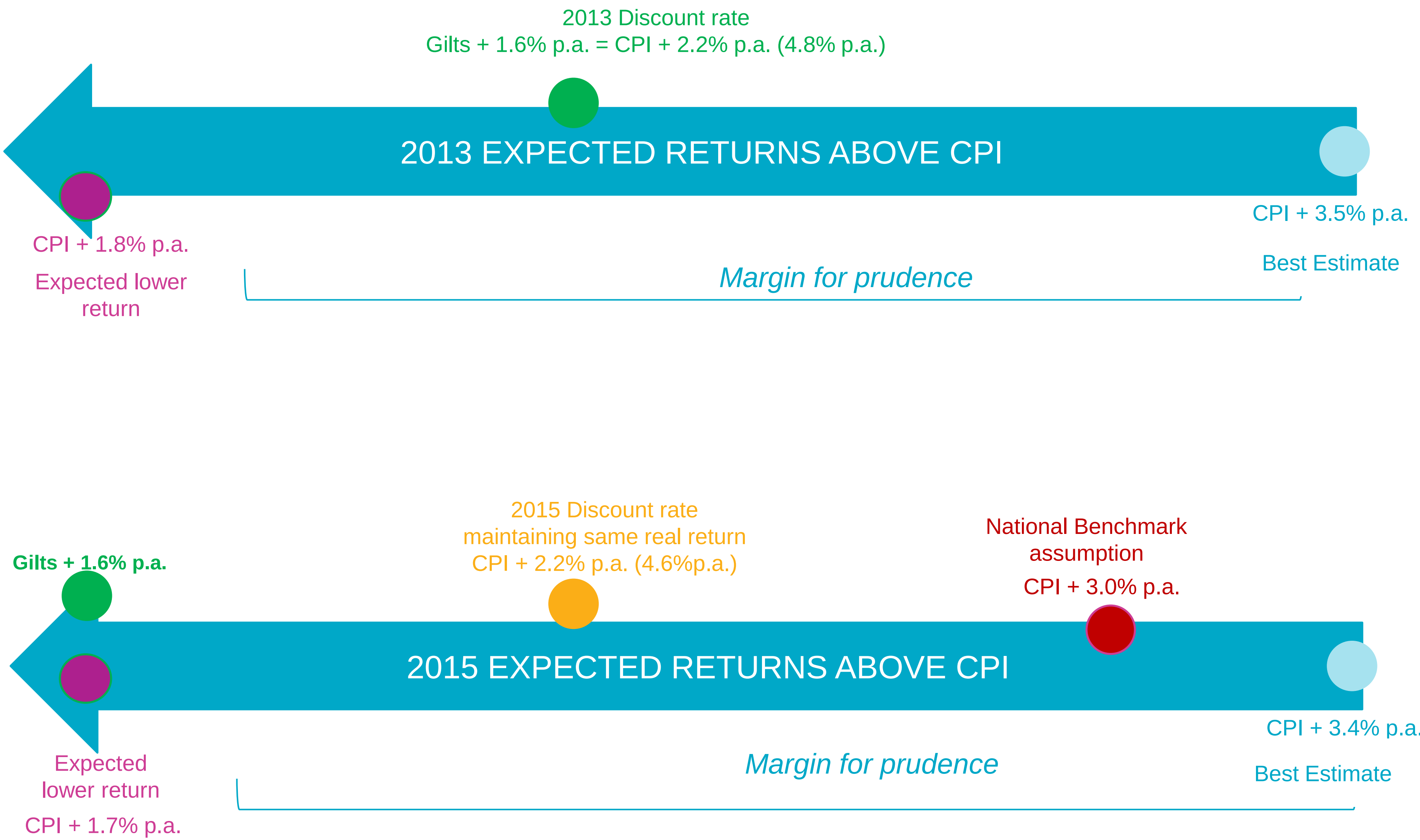
Comments

To develop the discount rate we ultimately look at the expected returns on the assets relative to CPI.

This can be done on the ***current*** benchmark investment strategy or on an ***aspirational*** lower risk strategy.

At 31 March 2013 the equivalent discount rate relative to CPI was CPI + 2.2% p.a. (CPI plus 3.0% p.a. for future service rate). Deficit contributions were predominately derived based on August 2013 yields which is equivalent to CPI + 2.6% pa

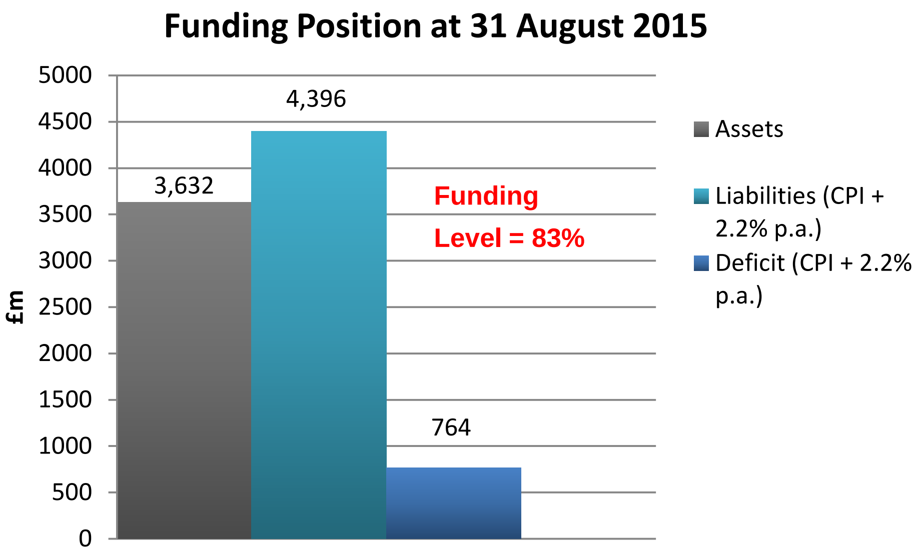
2015 ACTUARIAL ASSUMPTIONS
LEVEL OF PRUDENCE

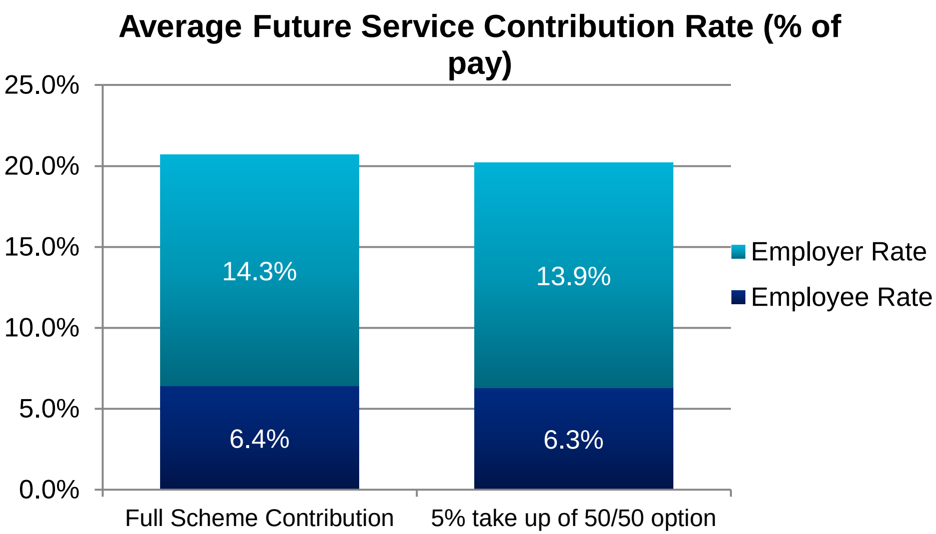


FINANCIAL ASSUMPTIONS

Market yields	**31 August 2015**
Fixed interest gilt yield	2.5% p.a.
Index-linked gilt yield	-0.9% p.a.
Assumed CPI price inflation (RPI derived by differencing yields on fixed-interest and index-linked gilts less 1% p.a. RPI/CPI gap)	2.4% p.a.
Assumptions used for Liabilities	
Derivation of Discount Rate /Expected Return	CPI plus 2.2% p.a. (CPI + 3.0% p.a. for future service rate)
Discount rate/Expected Return:	4.6% p.a.
Inflation: Consumer Prices Index (CPI)	2.4% p.a.
Pay inflation	3.9% p.a.
Pension increases	2.4% p.a.
Short term pay assumption	1% p.a. to 2019
Fund investment return	Approx.14.3% from 1 April 2013 to 31 August 2015

2015 RESULTS
WHOLE FUND – SHORT TERM PAY GROWTH (1% P.A. TO 2019)



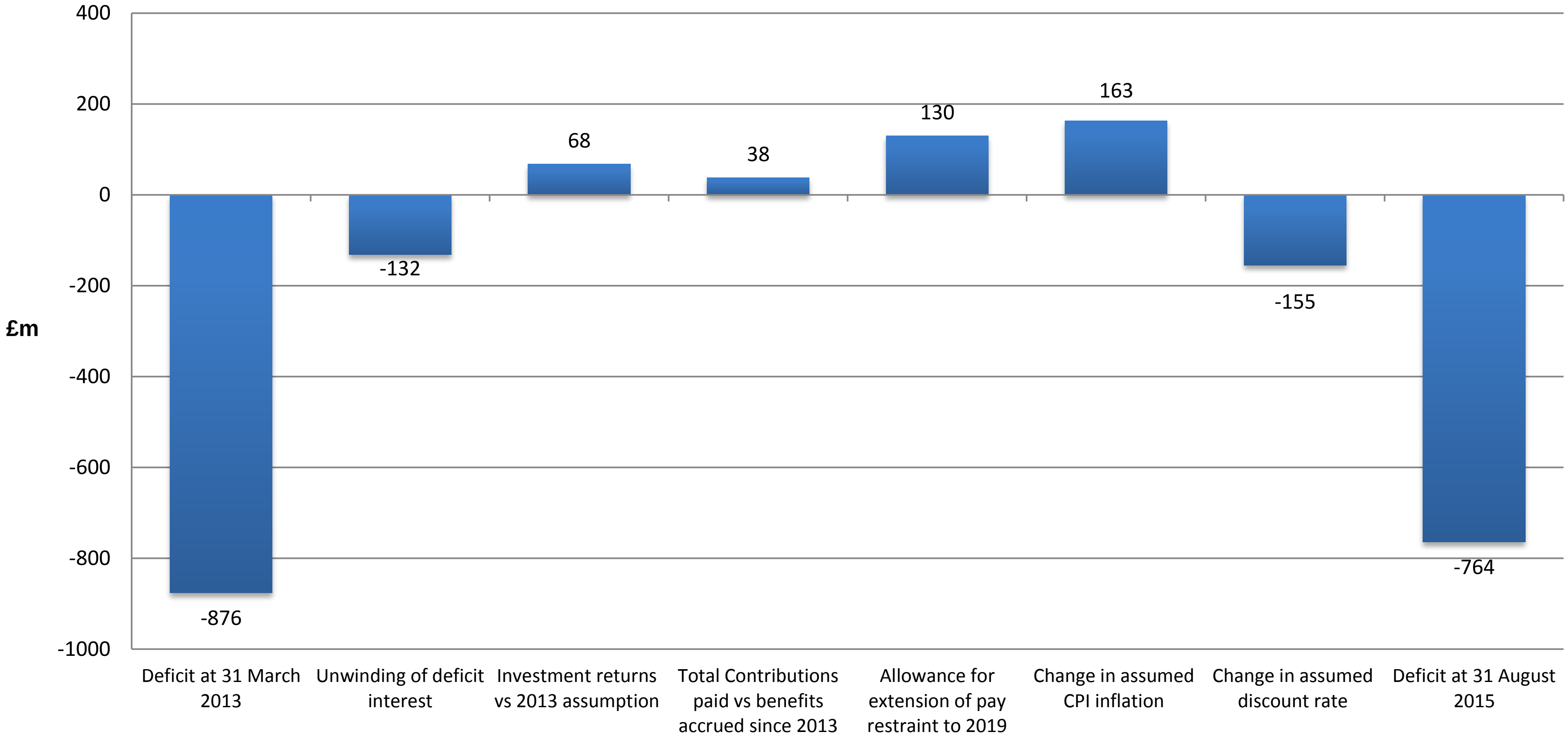


Average deficit contributions

(2015/16 equivalent deficit contributions of £39m p.a.)

	Required Payment (increasing with assumed pay growth)
Based on a deficit of £764m (CPI plus 2.2% p.a.) payable over c19 years i.e. from 1 September 2015	2015/16 - £43m 2016/17 - £44m 2017/18 - £46m

2013 RESULTS
ANALYSIS OF CHANGE IN DEFICIT POSITION



Discount Rate	Lower Real Return vs CPI	Same Real Return vs CPI at 2013	National Benchmarking basis
Real return over CPI i.e. investment return "hurdle rate"	**1.7% p.a. (3.0% p.a. for Future Service)**	2.2% p.a. (3.0% p.a. for Future Service)	3.0% p.a.
Deficit[1]	**£1,181m**	£764m	**£187m**
Funding Level	**76%**	83%	95%
Future Service Rate (% of pay per annum)	**13.9%**	13.9%	n/a
Deficit contributions payable over c19 years (2015/16)	**£63m p.a.**	£43m p.a.	n/a
Average Future Service Contributions (2015/16) based on payroll of £580m	**£81m p.a.**	£81m p.a.	n/a
Total contributions payable	**£144m p.a.**	£124m p.a.	n/a

[1]includes allowance for short term pay of 1% p.a. for 4 years up to 2019 for illustration

CONCLUSIONS

Discount rate linked explicitly to overall long term return expectations

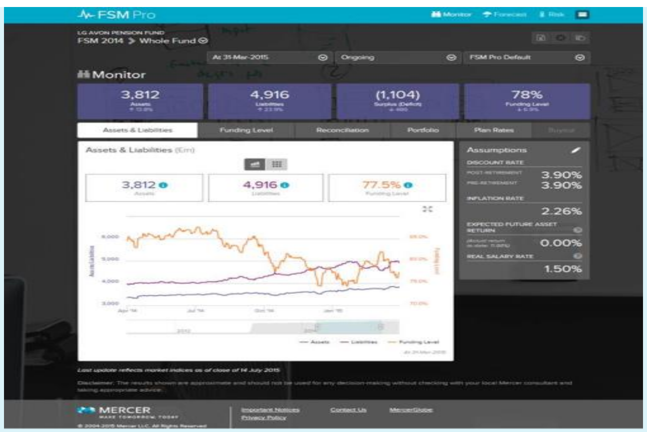
Prudence, transparency and long term planning crucial

2016 Valuation

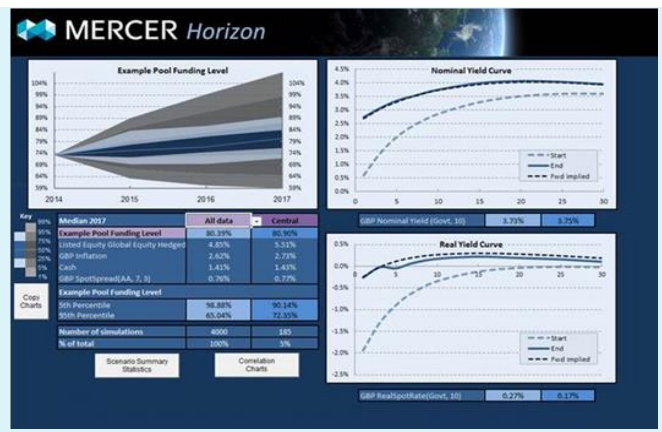
Risk management at a whole Fund and employer level is an integral part of the strategy

2016 VALUATION – EXAMPLE TIMELINE

2015Q3	2015Q4	2016Q1/2	2016Q2/3	2016Q3	2016Q4/ 2017Q1
INITIAL DISCUSSIONS	DEVELOP FUNDING STRATEGY	PRELIMINARY CALCULATIONS	RESULTS/ REVIEW FSS	DISCUSSIONS WITH EMPLOYERS	COMPLETE



MONITOR UP TO THE VALUATION AND BEYOND



APPENDIX
ACTUARIAL ADVICE

- We have prepared this document for the Administering Authority for the purpose of consideration of the funding strategy and 2016 valuation planning.
- Where appropriate the work is covered by and compliant with the following Technical Actuarial Standards (TAS) issued by the Financial Reporting Council: TAS R – Reporting Actuarial Information; TAS D – Data; TAS M – Modelling; and Pensions TAS.
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MAKE
TOMORROW,
TODAY

MERCER