Government Actuary's Department

Armed Forces pension arrangements:

Actuarial valuation as at 31 March 2012

Report by the Scheme Actuary

Date: 24 February 2015

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Contents

1 Executive summary

This report is addressed to the Secretary of State for Defence and provides the results of the actuarial valuation of the Armed Forces pension arrangements carried out as at 31 March 2012.

1.1 At the request of the Ministry of Defence (MoD), we have carried out an actuarial valuation of the Armed Forces Pension Scheme and related arrangements (AFPS or 'the Scheme') as at 31 March 2012 (the ***effective date***). The valuation has been undertaken in accordance with *The Public Service Pensions (Valuations and Employer Cost Cap) Directions 2014*, which specify certain assumptions and require other assumptions to be the Secretary of State's best estimates. HM Treasury has confirmed its consent to the assumptions proposed by the Secretary of State.

1.2 This report is addressed to the Secretary of State for Defence and sets out the results of the valuation. The ***valuation results*** specify the rate of employer contribution payable for the four year period from 1 April 2015 (the ***implementation period***) and the ***employer cost cap***[1] **(**which is to be set in regulations).

1.3 The key results of the valuation are as follows:

> ***Employer contribution rate*** payable for the ***implementation period***: 52.4% of pensionable pay for officers and 49.6% for other ranks (equivalent to 50.4% overall)

> ***Employer cost cap***: 34.6% of pensionable pay

> Total Scheme liabilities for service to the ***effective date*** of £67.6 bn and ***notional assets*** of £57.0 bn, giving a notional past service deficit of £10.6 bn.

[1] In accordance with Section 12 of the Public Service Pensions Act 2013 ('the Act')

2 Background

The valuation has been carried out in accordance with the HMT Directions.

2.1 The Armed Forces Pension Scheme and related arrangements (AFPS or 'the Scheme') provides pensions to members of the Armed Forces. The Scheme is an unfunded statutory public service pension scheme with the benefits underwritten by the Government. The Scheme is financed by payments from the MoD; it is non-contributory for members[2].

2.2 The rate of employer contributions is typically set following an actuarial valuation. The previous valuation of the Scheme was carried out as at 31 March 2005 and this recommended a future service employer contribution rate of 36.2% of pay for officers and 22.8% of pay for other ranks.[3] The actual contributions are calculated by considering the officer and other rank payrolls separately, but an estimated average contribution rate of 26.4% of pay was calculated by assuming officers make up 26.5% of the payroll. Additional contributions are also paid towards past service costs. The MoD's current contribution is approximately 32% of pay, including past service costs. All figures in this paragraph exclude contributions towards the Armed Forces Compensation Scheme (AFCS).

2.3 GAD has been appointed as ***Scheme Actuary***[4] by the Secretary of State to carry out an actuarial valuation of the Scheme as at 31 March 2012 (the ***effective date***). This report on the valuation is addressed to the Secretary of State for Defence and is also being made available to HM Treasury (HMT).

2.4 The valuation has been undertaken in accordance with *The Public Service Pensions (Valuations and Employer Cost Cap) Directions 2014* as amended[5] ('the Directions'). Terms defined in the Directions are shown in ***bold italics*** when used in this report.

2.5 The Directions require the existing AFPS and the new scheme being introduced for the Armed Forces on 1 April 2015 under Section 1 of the 2013 Act[6] ('the 2015 Scheme' or 'AFPS 15') to be taken into account in aggregate for the purposes of the current valuation. The results shown in this report relate to 'the aggregate scheme' that is the combination of the existing AFPS and 2015 Scheme.

[2] Members can however choose to make voluntary contributions in order to obtain additional benefits.
[3] The contribution rates for officers and other ranks differed significantly, mainly because the two groups receive different levels of benefits under AFPS 75.
[4] In accordance with direction 4 of *The Public Service Pensions (Valuations and Employer Cost Cap) Directions 2014*
[5] Amendments are the *Public Service Pensions (Valuations and Employer Cost Cap) (Amendment) Directions 2014,* the *Public Service Pensions (Valuations and Employer Cost Cap) (Amendment) (No 2) Directions 2014* and the *Public Service Pensions (Valuations and Employer Cost Cap) (Amendment) Directions 2015*
[6] *The Public Service Pensions Act 2013*

2.6 The main requirements of the valuation are set out in the Directions. These are to determine the rate of employer contribution payable from 1 April 2015 (***the implementation date***) for the four year period from 1 April 2015 (the ***implementation period***) and the initial ***employer cost cap***[7] (which is to be set in regulations). Paragraph 22 of the Directions requires a number of results relating to the liabilities, ***notional assets***, and contribution rates to be prepared and reported. These results are set out in Section 4 of this report. Appendix H sets out where other information as required by the Directions is provided in this, or related, valuation reports.

2.7 The ***employer contribution rate*** is expected to be reassessed at the actuarial valuation to be carried out as at 31 March 2016 (and each subsequent four yearly valuation). The next revision to the ***employer contribution rate*** is expected to take effect from 1 April 2019. The financial position relative to the ***employer cost cap*** will also be reconsidered at each four yearly valuation.

2.8 We have previously provided advice and information on certain aspects of the valuation. The following reports were issued in draft.

> *Armed Forces pension arrangements: Report on membership data as at 31 March 2012* draft dated 31 October 2014

> *Armed Forces pension arrangements: Actuarial valuation as at 31 March 2012: Report on data used for experience analysis* draft dated 1 August 2014

> *Armed Forces pension arrangements: Valuation as at 31 March 2012: Advice on assumptions* draft dated 1 August 2014

> *Armed Forces pension arrangements: Actuarial valuation as at 31 March 2012: Report on methodology* draft dated 13 January 2015.

The reports were not signed off in case further information came to light before the conclusion of the valuation process, including changes to the Directions. The reports have been signed on 24 February 2015 alongside this report. Changes to the reports are not substantive. The finalised reports should be read in conjunction with this report.

2.9 Throughout this report the totals given for summed data may not be exactly the same as the sum of the components shown due to rounding effects.

2.10 Appendix I sets out the limitations of this report.

[7] In accordance with Section 12 of *The Public Service Pensions Act 2013*

3 Key inputs

This section summarises what calculations were carried out, including the data, methodology and assumptions used, and the analysis performed on the results.

Data

3.1 At the ***effective date***, there were around 192,000 contributors to the Scheme with a total payroll of around £6.1 billion and around 405,000 pensions in payment with total annual pensions amounting to around £3.4 billion. Around 142,000 of these pensions in payment with total annual pensions amounting to around £1.2 billion were post 2001 pensions and therefore have been taken into account when determining the ***employer contribution rate.***[8]. There were around 404,000[9] ex-contributors who had not yet started to receive their pension.

3.2 Appendix A provides a summary of the main membership data. Further details on the data, including the checks carried out on that data, the limitations of those checks and adjustments made, are provided in the report *Armed Forces pension arrangements: Report on membership data* as at 31 March 2012 dated 24 February 2015.

3.3 Data in respect of members of GPS, NRPS PS and RGRPS (see paragraph 3.8 for details of abbreviations) is not included in the figures in Appendix A as sufficiently detailed individual member data was not available. Details of the data provided in respect of these schemes is included in our membership data report.

3.4 There were a number of issues with the membership data supplied for this valuation. GAD has made adjustments to address these issues, as described in Sections 4-6 of the *Report on membership data*. In GAD's opinion these adjustments are reasonable and appropriate for the purpose of this actuarial valuation. However, it should be noted that the ***employer contribution rate*** and ***employer cost cap*** results in this report might have been different if more reliable data had been available.

3.5 The ***employer contribution rate*** will feed through to the notional assets at future valuations, and so any such differences would affect the rate payable after 2019 as well as the rate payable from 2015-19. Any difference in the ***employer cost cap*** would affect the cost cap mechanism and could potentially lead to a change to the benefits provided to members. There will be similar risks if there are data deficiencies at future actuarial valuations.

3.6 Given the potential impact of data deficiencies, GAD recommends that MoD takes forward initiatives to improve valuation data quality before the next actuarial valuation as at 31 March 2016.

[8] Assets and liabilities relating to members whose pensions which commenced before 1 April 2001, and their dependants, are excluded when determining the ***employer contribution rate*** in accordance with clause 27 (2) of the Directions.

[9] Around 5,000 of these members aged above their latest deferred pension age are excluded from the calculations because they are considered unlikely ever to claim their pensions.

Benefits

3.7 The benefits provided to members of the AFPS are set out in governing legislation[10]. A new scheme ('the 2015 Scheme') is being introduced from 1 April 2015 under separate regulations[11]. Most existing Scheme members will transfer to the 2015 Scheme on 1 April 2015. Under transitional arrangements aimed at providing protection for those nearest retirement age, some older members will continue in the existing scheme until they leave due to retirement or otherwise.

3.8 The Armed Forces pension arrangements in scope for the actuarial valuation consist of the following defined benefit pension schemes:

- Armed Forces Pension Scheme 1975 (AFPS 75)
- Armed Forces Pension Scheme 2005 (AFPS 05)
- Full Time Reserve Service Pension Scheme 1997 (FTRS PS)
- Reserve Forces Pension Scheme 2005 (RFPS)
- Non-Regular Permanent Staff Pension Scheme (NRPS PS)
- Gurkha Pension Scheme (GPS)
- Royal Gibraltar Regiment Pension Scheme (RGRPS)
- The Armed Forces Pension Scheme 2015 (AFPS 15)

The Armed Forces Compensation Scheme (AFCS) is outside the scope of the actuarial valuation.

3.9 Appendix B gives a summary of the benefits provided under the current schemes and of those to be provided under the 2015 Scheme. It also sets out the criteria by which Scheme membership will be determined from 1 April 2015 when the 2015 Scheme is introduced. Further details on benefits and the membership of the two schemes from 1 April 2015 is provided in the report *Armed Forces pension arrangements: Report on membership data as at 31 March 2012* dated 24 February 2015.

3.10 On 8 November 2014 the government announced a change in policy effective from 1 April 2015 in respect of remarriage cessation for AFPS 75. Remarriages after that date will no longer result in cessation of spouses' pensions, and applications for ceased pensions to be restored will no longer be subject to a means test. The relevant AFPS 75 legislation has been amended and accordingly the valuation results include liabilities associated with this change.

[10] The Scheme governing legislation includes: *The Navy, Army and Air Force Pensions (Armed Forces Pension Scheme 1975 And Attributable Benefits Scheme) (Amendment) Warrants 2010, The Armed Forces Pension Scheme Order 2005 and The Armed Forces Early Department Payments Scheme Order 2005*
[11] *The Armed Forces Pension Regulations 2014* (SI 2014/2336) and *The Armed Forces Early Departure Payments Regulations 2014* (SI 2014/2328)

3.11 Under the Directions currently in force, liabilities associated with this policy change relating to members whose pensions which commenced before 1 April 2001, and their dependants, are excluded when determining the ***employer contribution rate***. However, we understand that it is intended that the Directions will be amended before the next valuation as at 31 March 2016 so that such liabilities are required to be included at that valuation. We would not expect the consequent addition to the ***employer contribution rate*** payable by MoD to be material.

Notional assets

3.12 The Scheme is financed by contributions from the MoD[12]. The contributions paid to the Scheme fall into general government revenues. There is no actual fund of assets but an account is maintained of a notional fund made up of contributions paid supplemented by a return on the notional fund at a pre-determined rate and reduced by benefits as and when they are paid to retired and former members of the Scheme. The notional fund stood at £57.0 billion as at the ***effective date***. Appendix C provides further information on the development of the notional fund since the previous valuation as at 31 March 2005. Appendix D sets out the rates of contribution paid since the previous valuation and summarises other events affecting the Scheme since that valuation.

Assumptions

3.13 The Directions specify certain assumptions to be used for the valuation whilst requiring certain other assumptions to be set as the Secretary of State's best estimates, after taking the advice of the ***Scheme Actuary***. Actuarial advice on the scheme specific assumptions (including variations appropriate for the purposes of determining the ***employer cost cap***), and other relevant information (including an analysis of the Scheme's demographic experience), is set out in the reports:

> *Armed Forces pension arrangements: Valuation as at 31 March 2012: Advice on assumptions* dated 24 February 2015

> *Armed Forces pension arrangements: Actuarial valuation as at 31 March 2012: Report on data used for experience analysis* dated 24 February 2015.

3.14 The Secretary of State has consulted relevant stakeholders and instructed us to adopt the best estimate assumptions recommended in our advice, having obtained HMT consent to those assumptions. Appendix E summarises the key assumptions made.

Methodology and calculations

3.15 The Directions specify that the Projected Unit Methodology should be used. Application of this methodology to determine the ***valuation results*** as specified requires some assumptions to be made about the size and make-up of the workforce up to the end of the ***implementation period***[13].

[12] Plus any voluntary contributions made by members
[13] 1 April 2015 to 31 March 2019

3.16 To calculate the ***employer contribution rate***, we have placed a net present value on the extra annual benefit accrual over the four-year ***implementation period*** and then adjusted for the repayment of the deficit over 15 years. The ***employer cost cap*** is a measure of the cost of the 2015 Scheme only. The calculation of the ***employer cost cap*** is similar to that of the ***employer contribution rate*** but is based on all members being in the 2015 Scheme in April 2015, with assumptions reflecting members' likely behaviour had they never been members of the existing schemes, and assuming no deficit contributions apply.

3.17 Appendix F summarises the actuarial methodology adopted for the valuation in more detail. Further details on methodology, including the approach taken to projecting the workforce and the rationale for that approach, are provided in the report *Armed Forces pension arrangements: Actuarial valuation as at 31 March 2012: Report on methodology* dated 24 February 2015. Appendix F also summarises the calculations undertaken to determine the ***valuation results*** in more detail.

3.18 Section 4 of this report sets out the ***valuation results***.

Analysis of results

3.19 Section 5 of this report provides a reconciliation of the financial position at the previous valuation date, 31 March 2005, and at the ***effective date*** of the current valuation.

3.20 Section 6 provides further information which is intended to assist in the interpretation of the results shown. In particular, this section shows the main sensitivities of the ***valuation results*** to the assumptions set by the Secretary of State.

3.21 Section 7 comments on the main risks which could result in some variations in the ***valuation results*** at subsequent valuations.

4 Valuation results

This section provides the valuation results required by the Directions.

4.1 Direction 22 requires certain numerical ***valuation results*** to be reported. This section provides the information required by the Directions.

Valuation balance sheet at 31 March 2012

The assets and past service liabilities of the aggregate scheme[14] as at the ***effective date*** calculated in accordance with the Directions, and otherwise as specified in this report, are set out in Table 4.1. The liabilities valued include all benefits currently or prospectively payable under the aggregate scheme to pensioners and deferred pensioners as at 31 March 2012 and to active members as at 31 March 2012 in respect of service completed to the ***effective date***. In the case of active members, liabilities arising from future pay inflation to the assumed future date of cessation of pensionable service are included in the liability shown. Corresponding figures at the previous valuation date are shown for comparison purposes.

For the purpose of determining the ***employer contribution rate***, liabilities and notional assets for members whose pensions commenced before 1 April 2001, and their dependants, are excluded as required by Direction 27(2). The assets and liabilities after this exclusion are set out in Table 4.2, again with corresponding figures at the previous valuation date.

[14] The results shown in this report relate to 'the aggregate scheme' that is the combination of the existing Armed Forces pension arrangements and the 2015 Scheme. All liabilities in respect of service to the ***effective date*** relate to the existing Armed Forces pension arrangements.

Table 4.1: Valuation balance sheet – all assets and liabilities[15]

	£ billion 31 March 2012	*Direction*	£ billion 31 March 2005
Aggregate scheme assets	87.8	*25*	66.0[16]
Aggregate scheme liabilities[17] [18] in respect of:			
Active members	24.6		21.3
Deferred pensioners	14.6		8.3[19]
Pensioners	63.5		38.5
Total aggregate scheme liabilities	102.7	*24*	68.1
Surplus (Shortfall) as at valuation date	(14.9)		(2.0)

Table 4.2: Valuation balance sheet – excluding pre-2001 pensioners

	£ billion 31 March 2012	£ billion 31 March 2005
Aggregate scheme assets	57.0	34.3[20]
Aggregate scheme liabilities in respect of:		
Active members	24.6	21.3
Deferred pensioners	14.6	8.3
Pensioners	28.5	6.8
Total aggregate scheme liabilities	67.6	36.4
Surplus (Shortfall) as at valuation date	(10.6)	(2.0)

[15] All figures exclude the cost of the Armed Forces Compensation Scheme (AFCS) which is outside the scope of the actuarial valuation.
[16] As specified in Schedule 2 of the Directions. Includes an adjustment of +£1.6 billion relating to data cleansing for deferred members.
[17] Includes liabilities relating to past added years and additional pension and other options paid for by member contributions.
[18] The 2012 liabilities include the impact of the policy change on remarriage cessation in AFPS 75 announced by the government on 8 November 2014.
[19] Includes an increase of £1.6 billion in relation to data cleansing, consistent with the asset adjustment.
[20] Determined to be consistent with the figure in Schedule 2 of the Directions.

Contribution rates

4.2 Whilst the ***effective date*** of the actuarial valuation is 31 March 2012, the ***employer contribution rate*** determined is that payable in respect of the period 1 April 2015 to 31 March 2019 (the ***implementation period***). The ***employer contribution rate*** required over the ***implementation period*** is determined from the following components:

> The contribution rate, payable from 1 April 2015 for a period of 15 years, required to meet the shortfall between assets and liabilities as shown in Table 4.2

> Plus the contribution rate, payable from 1 April 2015 for a period of 15 years, required to meet any shortfall in the expected cost of benefits accruing between the ***effective date*** and 31 March 2015 and the actual contributions paid over the same period

> Plus the contribution rate, payable from 1 April 2015, required to cover the expected cost of benefits accruing by members over the ***implementation period.***

4.3 The relevant ***valuation results***, expressed as a percentage of pensionable payroll, are summarised in Table 4.3.

Table 4.3: Contribution rates[21]

	%	%		***Direction***
Contribution rate required to be paid for 15 years from 1 April 2015 to correct shortfall at 31 March 2012		16.4	A	*27(1)(a)*
Contribution rate required to cover cost of benefits accruing between 1 April 2012 and 31 March 2015[22]	34.1			*27(1)(b)*
Less employer contribution rate expected between 1 April 2012 and 31 March 2015	32.1			*28(b)*
Net contribution shortfall between 1 April 2012 and 31 March 2015	2.0			
Contribution rate required to be paid for 15 years from 1 April 2015 to correct underpayment of contributions between 1 April 2012 and 31 March 2015		0.5	B	*27(1)(c)*
Contribution rate required to cover cost of benefits accruing over implementation period	33.5		C	*27(1)(d)*
Less normal member contribution rate expected over implementation period	0.0		D	*28(c)*
Employer contribution rate required for cost of accrual of benefits over implementation period		33.5	C-D	
Employer contribution rate required over implementation period A + B + C - D		50.4		*29*

[21] The figures exclude the cost of the Armed Forces Compensation Scheme (AFCS) which is outside the scope of the actuarial valuation.
[22] Cost of accrual excludes past added years, additional pension and other options paid for by voluntary member contributions.

Employer cost cap

4.4 The ***proposed employer cost cap*** is determined as the contribution rate, payable from 1 April 2015, required to cover the expected cost of benefits accruing by members over the ***implementation period***. This is determined using data, methodology and assumptions adjusted in accordance with Direction 53(3) to (6).

The relevant valuation results, expressed as a percentage of pensionable payroll, are summarised in Table 4.4.

Table 4.4: Employer cost cap[23]

	%		***Direction***
Contribution rate required to cover expected cost of benefits accruing over implementation period, assuming all members are accruing benefits in the 2015 scheme	34.6	A	
Less normal member contribution rate expected over implementation period	0.0	B	
Proposed employer cost cap A-B	34.6		*53*

4.5 The ***valuation results*** have been determined in accordance with the requirements as to data, assumptions and methodology as specified in the Directions.

[23] The figures exclude the cost of the Armed Forces Compensation Scheme (AFCS) which is outside the scope of the actuarial valuation.

5 Reconciliation of result with previous valuation results

This section looks at how the valuation results have changed since the previous valuation as at 31 March 2005.

5.1 The previous valuation of the AFPS was carried out as at 31 March 2005. The framework for that valuation was different to that under which the current valuation has been carried out. This has resulted in some considerable movements in the calculation of the liabilities.

5.2 Table 5.1 shows how the valuation balance sheet has changed since the previous valuation. Some figures have been calculated in an approximate manner but are sufficient to show the general size of the impact on the balance sheet. Table 5.2 provides further information on the items identified. Impacts are considered in the order listed. Using a different order could change the intermediate figures significantly, though there is no impact on the final shortfall.

Table 5.1: Valuation balance sheet - Comparison with previous valuation

	£ billion	Note
Surplus (shortfall) at 31 March 2005	**(2.0)**	
Change in actuarial method	0.3	1.
Adjusted surplus (shortfall) at 31 March 2005	**(1.7)**	
Interest on surplus (shortfall)	(1.0)	
Shortfall in return on notional assets	(0.3)	2.
Shortfall in contributions paid against cost of benefits accruing 2005 to 2012	(0.5)	3.
Change in policy on AFPS 75 remarriage cessation	(0.1)	4.
Experience effects		
Pay increases lower than expected	3.9	5.
Ill health retirements fewer than expected	(0.3)	
Withdrawals lower than expected	(0.8)	
Pensioner mortality lighter than expected	0.0	
Negative inflation in 2009 (pensions held level in 2010)	(0.3)	
Change in long-term financial assumptions	(10.3)	6.
Impact of short-term variation of assumptions	3.5	7.
Impact of change in demographic assumptions	(2.8)	8.
Unattributed	0.1	
Surplus (shortfall) at 31 March 2012	**(10.6)**	

Table 5.2: Explanation of analysis

Note	Explanation
1.	There has been a change to the way that non-accruing benefits[24] have been accounted for such that they are recognised at the time of retirement or death rather than spread over all service.
2.	At the previous valuation the return on the ***notional assets*** was anticipated to be 3.5% a year above pension increases. This rate applied until 31 March 2011 but was reduced to 3% above pension increases after that date, see Direction 25 (4). The impact of this change means the ***notional assets*** are lower than anticipated at the previous valuation.
3.	This impact has been assessed on the financial assumptions applying to the 2005 valuation. If the cost of accrual had instead been assessed on the financial assumptions applying to the 2012 valuation then the shortfall from this item would have been larger.
4.	On 8 November 2014 the government announced a change in policy on remarriage cessation for AFPS 75 effective from 1 April 2015. Further details can be found in paragraphs 3.10-3.11.
5.	Pay increases over the period between the previous and current valuations have been lower than anticipated. This is largely as a result of the pay restraint policy applied to public service workers during the period.
6.	The financial assumptions are set by HMT. Appendix E summarises the financial assumptions set for the current and previous valuations. The most financially significant change in the long term financial assumptions is the reduction in the rate of discount net of pension increases from 3.5% a year to 3.0% a year. The reduction in net discount rate includes the impact of changing from RPI to CPI revaluation of pensions in payment and deferment, which in isolation would have reduced liabilities by about 12%[25].
7.	The Directions for the current valuation specify some variation in financial assumptions for the period between the ***effective date*** and the end of the ***implementation period***. The short-term assumptions specified result in lower assessed liabilities. No short-term variations were assumed for the previous valuation.
8.	The impact of the change in demographic assumptions is the net result of a number of changes but is dominated by an increase in assumed improvements in life expectancy.

[24] Service enhancements on ill-health retirement and death in service and lump sums on death in service
[25] In line with 2010/11 Annual Accounts which assumed an annual difference between CPI and RPI of 0.75% per annum

5.3 Table 5.3 illustrates how the employer contribution rate has changed since the previous valuation. Again, some figures have been calculated in an approximate manner but are sufficient to show the general size of the impact on the contribution rate. Impacts are considered in the order listed. Using a different order could change the intermediate figures significantly, though there is no impact on the final contribution rate.

Table 5.3: Employer contribution rate - Comparison with previous valuation

	% pay
Employer contribution rate determined at 31 March 2005[26]	**31.8**
Change in financial assumptions	7.4
Change in demographic assumptions	2.6
Change in adjustment for past service effects[27]	11.5
Introduction of 2015 Scheme	(2.8)
Unattributed	(0.1)
Employer contribution rate determined at 31 March 2012	**50.4**

[26] This is based on the assumption that officers make up 26.5% of the payroll and includes past service costs.
[27] Including contribution shortfall between the ***effective date*** and ***implementation date***

6 Sensitivity of valuation results to assumptions

This section illustrates how the valuation results would change if different assumptions were used.

6.1 This section illustrates the sensitivities of the ***valuation results*** to the assumptions determined by the Secretary of State[28]. Sensitivities are not shown for assumptions specified in the Directions since these are fixed for the purpose of this valuation.

6.2 Table 6.1 shows the sensitivities relative to the past service liabilities, the cost of future accrual, the ***employer contribution rate*** and the ***proposed employer cost cap***. The sensitivities shown are intended to illustrate a range of reasonable outcomes which might have been determined at this valuation. They are not intended to show the possible range of variation in assumptions which might be considered at future valuations and in light of future experience. Section 7 and Appendix G comment on the main risks which could result in some variations in the ***valuation results*** at subsequent valuations.

Table 6.1: Sensitivity of valuation results to Secretary of State set assumptions

	Addition to past service liabilities	**Addition to contribution rate for future accrual**	**Combined addition to employer contribution rate[29]**	**Additional to proposed employer cost cap**
(i) **Mortality rates***:				
(a) pensioners subject to mortality rates 5% heavier than assumed[30]	(£0.4bn)	(0.4%)	(1.0%)	(0.4%)
(b) 5% more deaths before retirement than currently assumed	Nil	Nil	Nil	Nil
(ii) **Age retirement rates***: 5% increase in number of new joiners assumed to reach immediate pension/early departure payment point	£0.3bn	0.4%	1.1%	0.4%
(iii) **Ill health retirements***				
(a) Rate of ill health retirements: 5% higher numbers of members assumed to retire on ill health grounds than currently assumed	Nil	0.1%	0.1%	0.1%

[28] As specified in direction 19(e)
[29] Combined effect of additions for past service, underpayment of contributions over 2012-15 (not shown separately) and future accrual
[30] Broadly speaking this is equivalent to assuming members spend 0.5 years less in retirement

	Addition to past service liabilities	Addition to contribution rate for future accrual	Combined addition to employer contribution rate[29]	Additional to proposed employer cost cap
(b) Severity of ill health retirements: 5% more members assumed to receive upper tier benefits than currently assumed and 5% less assumed to receive lower tier	No impact	0.1%	0.1%	0.1%
(iv) **Members' dependants***				
(a) proportions partnered: 5% more members assumed to have qualifying partners at death	£0.2bn	0.2%	0.5%	0.2%
(b) age difference between member and partner: dependants assumed to be 1 year older than that based on current assumption	(£0.2bn)	(0.1%)	(0.4%)	(0.1%)
(v) **Withdrawal***: withdrawal rates a third higher	(£0.6bn)	(1.6%)	(2.9%)	(1.6%)
(vi) **Promotional pay increases***: promotional pay increases 0.5% per annum higher on average than assumed	£0.8bn	Nil	1.5%	No impact

* Opposite changes in the assumptions will produce approximately equal and opposite changes in the valuation results.

6.3 In each variant of Table 6.1 the sensitivity shown is in relation only to the change in assumption described. The impact of a combination of assumption changes will not necessarily equate to the sum of the relevant rows above.

7 Uncertainties around possible outcomes of the next valuation

This section considers some of the risks relating to the outcomes of the next valuation.

7.1 The results of this valuation are set out in Section 4. Section 6 outlines the sensitivity of the results to those assumptions set by the Secretary of State. The sensitivities shown in that section are intended to illustrate a range of reasonable outcomes which might have been determined at this valuation had different assumptions been used. The range of reasonable outcomes at this valuation is different to, and not necessarily related to, the possible range of outcomes at future valuations.

7.2 The results of the next valuation (both the ***employer contribution rate*** and the ***cost cap cost of the scheme***[31]) will differ from the results shown in this report for many reasons. Table 7.1 shows some of these reasons. These differences can be split into three categories:

- those that are expected
- those that are likely to occur due to short-term variations between experience and assumptions
- those that are possible but less likely and would result from more significant experience variations leading to changes in assumptions or from data errors

7.3 The results of future valuations might affect the level of contributions payable and/or the amount of benefits payable to members for future service. Further information on the cost cap mechanism and how this may affect member benefits and/or contributions after future valuations is provided in Appendix G.

7.4 More explanation relating to the items in the table is given in the remainder of this section.

[31] This will be compared to the ***employer cost cap*** at the next valuation. See Appendix G for further details.

Table 7.1: Items that may affect the next valuation[32, 33]

Item		Employer contribution rate[34]	Cost cap cost of the scheme[33]
Expected:	Reduction in proportion of membership accruing benefits in existing schemes	o	o
	Partial deficit repayment	✓✓	N/A
	Short-term mortality improvements & increases in members' average SPA	o	o
	Run-off of short-term financials up to the next valuation date	✓	N/A
Likely:	Short-term experience effects:		
	- demographic	✓	✓
	- financial	✓✓	✓
	Assumption changes:		
	- short-term financials after the next valuation date	✓✓	✓✓
	- mortality improvements	✓✓	✓✓
Possible:	Errors found in data sets from previous valuations	✓✓	✓
	Unanticipated membership changes	✓✓	✓
	Assumption changes:		
	- demographics set by the Secretary of State	✓✓	✓

Key[35, 36]:N/A = not applicable,

o = impact is likely to be less than 0.5% of pay,

✓ = impact may well be more than 0.5% of pay but, although possible, is quite unlikely to be more than 2.0% of pay,

✓✓ = impact may well be more than 2% of pay

[32] All cost pressures are assumed to feed through to the ***employer contribution rate*** and the ***cost cap cost of the scheme*** in line with the Directions; more detail on how the directions treat cost pressures is set out in paragraphs 2.31 to 2.35 of *Public service pensions: actuarial valuations and the employer cost cap mechanism* published by HMT in March 2014.

[33] We have ignored items such as changes to the Directions (apart from those described as "likely" in paragraph 2.39 of *Public service pensions: actuarial valuations and the employer cost cap mechanism*), benefit changes or changes to relevant law (including European law), because it is impossible for us to form any judgement on the likelihood or quantum of such changes.

[34] Each item is considered separately; a combination of these items could have a larger impact than is considered likely for any of those items individually.

[35] Showing relative importance of items in the table, in our judgement at the time of signing

[36] Shown in increasing order

7.5 As explained above, some of the factors affecting the results of the next valuation are relatively predictable. For example:

> **Scheme membership:** There will be fewer members of the existing sections of the Scheme as protected members retire. This will impact on the cost of future accrual.

> **Deficit:** Part of the existing deficit will be paid off through the deficit contributions payable before the next ***implementation date***.

> **Mortality improvements:** Life expectancies are expected to continue to increase though the impact of this will be offset to an extent by increases in the average SPA of active members.

> **Short term financials:** The short term financial assumptions up to the effective date of the next valuation will determine some of the experience effects at the next valuation but otherwise will not be relevant to the determination of the valuation results of the next valuation.

7.6 It would be possible to calculate the expected contribution rate at the next valuation allowing for these more predictable effects. However, any estimate would still be subject to considerable uncertainty, not least because of the long period over which the membership would need to be projected.

7.7 Other impacts on the results of the next valuation are less predictable. These include:

> **Data:** If the data used for this valuation is later shown to be materially incorrect, a gain or loss will emerge when it is corrected. For example, if the next valuation reveals that the accrued pensions at this valuation are found to be 5% underreported, all other things being equal, the employer contribution rate could increase by around 5% of pay.

> **Scheme membership:** The distribution of future scheme membership may differ from that projected at this valuation. For example, if the scheme membership unexpectedly grows by 10% by 2016 due to an influx of new joiners, then this might reduce the ***employer contribution rate*** by around 2.5% of pay and the ***cost cap cost of the scheme*** by around 1% of pay.

> **Short term experience effects:** If experience is not in line with the assumptions made, a gain or loss will emerge over an inter-valuation period. At this valuation, financial experience has had a bigger effect on the ***employer contribution rate*** than demographic experience (as shown in Tables 5.1 and 5.3). However, the scale of the experience effects seen over the current inter-valuation period is not necessarily indicative of the scale of the effects for future periods.

> **Longer term experience effects:** Assumption changes at future valuations in light of scheme experience may have more substantial effects on the results than actual experience effects. The greater sensitivity to assumption changes is because the assumptions typically apply to longer periods than the experience effects are measured over.

> **Other assumption changes:** Assumptions may change for reasons other than scheme experience, and paragraph 2.39 of *Public service pensions: actuarial valuations and the employer cost cap mechanism* flags that some of the assumptions set in the Directions (including short-term financial assumptions) are likely to change. The ***employer contribution rate*** is particularly sensitive to the short-term financial assumptions. ***Valuation results*** are also sensitive to other assumptions set in the Directions, such as the discount rate, mortality improvements and commutation take up. It is expected that any changes to assumptions in the Directions will impact on the ***employer contribution rate***. The impact of changes in assumptions on the cost cap mechanism is described in paragraphs 2.31 to 2.35 of *Public service pensions: actuarial valuations and the employer cost cap mechanism*.

8 Conclusion

This section summarises the valuation results.

8.1 Based on the detailed analysis as set out in this report, the key results of the valuation are as follows:

> ***Employer contribution rate*** payable for the ***implementation period***: 52.4% of pensionable pay for officers and 49.6% for other ranks (equivalent to 50.4% overall)

> ***Employer cost cap***: 34.6% of pensionable pay

> Total Scheme liabilities for service to the valuation date of £67.6 bn and ***notional assets*** of £57.0 bn, giving a notional past service deficit of £10.6 bn.

8.2 The next valuation of the Scheme is due to be undertaken as at 31 March 2016. This will set the ***employer contribution rate*** payable from 1 April 2019, determine the opening value of the ***cost cap fund*** and provide the cost cap analysis as required by the Directions for future valuations.

Martin Clarke
Government Actuary
24 February 2015

Alan Dorn
Fellow of the Institute and Faculty of Actuaries
24 February 2015

Appendix A: Summary of main membership data and comparison with data at previous valuation

Table A1: Actives

		2005					2012				
	Gender	Number of members (000s)	Total Representative Pay (£m)	Average Representative Pay (£)	Average age (*) (years)	Average reckonable service (*) (years)	Number of members (000s)	Total Pensionable Pay (£m)	Average Pensionable Pay (£)	Average age (*) (years)	Average reckonable service (*) (years)
Officers	**Male**	-	-	-	-	-	28	1,473	52,786	41	16
	Female	-	-	-	-	-	4	193	48,514	36	10
	Total	32	1,476	45,780	37	14	32	1,665	52,253	40	15
Other Ranks	**Male**	-	-	-	-	-	145	4,033	27,776	32	11
	Female	-	-	-	-	-	14	381	27,433	31	10
	Total	167	4,104	24,581	29	11	159	4,414	27,746	32	11
All	**Male**	-	-	-	-	-	173	5,506	31,806	34	12
	Female	-	-	-	-	-	18	574	32,121	32	10
	Total	199	5,580	28,013	32	12	191	6,080	31,836	34	12

* Weighted by pay

Table A2: Deferreds

		2005[37]				2012			
	Gender	Number of members (000s)	Total Deferred Pension (£m)	Average Deferred Pension (£)	Average age* (years)	Number of members (000s)	Total Deferred Pension (£m)	Average Deferred Pension (£)	Average age* (years)
Officers	**Male**	8	30	3,878	42	12	50	4,361	47
	Female	1	4	3,716	39	3	10	4,125	44
	Total	9	34	3,857	42	14	61	4,318	47
Other Ranks	**Male**	252	482	1,912	43	344	797	2,319	46
	Female	27	47	1,718	39	41	105	2,574	45
	Total	279	529	1,893	43	385	902	2,346	46
All	**Male**	260	512	1,971	43	355	847	2,385	46
	Female	29	52	1,800	39	44	116	2,665	45
	Total	288	563	1,954	43	399	963	2,415	46

* Weighted by deferred pension

[37] Since 2005 there have been significant adjustments to the deferred data arising from data cleansing, resulting in a net increase in the number of deferred members. The 2005 data should therefore be treated with caution.

Table A3: All Pensioners

		2005				2012			
		Number of members (000s)	Total Pension (£m)	Average Pension (£)	Average age* (years)	Number of members (000s)	Total Pension (£m)	Average Pension (£)	Average age* (years)
Officers	**Pre 2001**	72	789	10,998	69	39	603	15,303	73
	Post 2001	10	138	13,817	56	25	435	17,465	59
	Total	82	927	11,342	67	64	1,038	16,140	67
Other Ranks	**Pre 2001**	169	1,332	7,889	60	201	1,571	7,797	68
	Post 2001	96	242	2,514	48	115	739	6,445	53
	Total	265	1,574	5,937	58	316	2,310	7,306	63
All	**Pre 2001**	241	2,120	8,816	64	241	2,174	9,025	69
	Post 2001	106	380	3,577	51	140	1,174	8,410	55
	Total	347	2,500	7,211	62	380	3,348	8,799	64

* Weighted by pension

Table A4: Pensioner Members

		2005				2012			
		Number of members (000s)	**Total Pension (£m)**	**Average Pension (£)**	**Average age* (years)**	**Number of members (000s)**	**Total Pension (£m)**	**Average Pension (£)**	**Average age* (years)**
Officers	**Pre 2001**	55	701	12,674	68	30	532	17,450	72
	Post 2001	6	113	18,673	53	18	369	21,053	57
	Total	61	813	13,264	66	48	901	18,767	66
Other Ranks	**Pre 2001**	131	1,250	9,557	60	173	1,470	8,509	67
	Post 2001	86	215	2,502	46	95	669	7,050	52
	Total	217	1,466	6,758	58	268	2,140	7,991	62
All	**Pre 2001**	186	1,951	10,483	63	203	2,002	9,849	68
	Post 2001	92	328	3,561	48	112	1,039	9,234	53
	Total	278	2,279	8,192	61	316	3,041	9,630	63

* Weighted by pension

Table A5: Pensioner dependants and children

		2005				2012			
		Number of members (000s)	**Total Pension (£m)**	**Average Pension (£)**	**Average age* (years)**	**Number of members (000s)**	**Total Pension (£m)**	**Average Pension (£)**	**Average age* (years)**
Officers	**Pre 2001**	16	88	5,354	77	9	71	7,980	80
	Post 2001	4	25	6,413	71	7	65	8,891	75
	Total	20	113	5,560	76	16	137	8,391	78
Other Ranks	**Pre 2001**	38	81	2,144	70	29	100	3,506	74
	Post 2001	10	27	2,619	62	20	70	3,541	66
	Total	48	108	2,244	68	48	170	3,520	71
All	**Pre 2001**	54	169	3,113	74	38	172	4,570	77
	Post 2001	14	52	3,678	66	27	135	4,990	70
	Total	69	221	3,230	72	65	307	4,746	74

* Weighted by pension

Appendix B: Summary of benefits

B1 The Directions require the AFPS and the new scheme being introduced for the Armed Forces on 1 April 2015 ('the 2015 Scheme') to be taken into account in aggregate for the purposes of the current valuation. The summary of benefits provided is shown separately for the current AFPS and the 2015 Scheme. The criteria by which Scheme membership will be determined from 1 April 2015 are also shown.

Criteria for scheme membership from 1 April 2015

Protected Members

B2 All active members who, as of 1 April 2012, have 10 years or less to their current Normal Pension Age (eg NPA 55 members who are aged 45 and over on 1 April 2012) will see no change in when they can retire, nor any decrease in the amount of pension they receive at their current Normal Pension Age. This protection will be achieved by the member remaining in their current scheme until they exit pensionable service.

Unprotected members

B3 All other active members will transfer to the new arrangements on 1 April 2015.

B4 The benefit provisions of the main schemes included in the Armed Forces pension arrangements are shown in the following tables.

Table B1 – AFPS 75 (broadly similar provisions apply for FTRS PS)

1.	Type of scheme	Final salary
2.	Contracting out status prior to 2016	Contracted out
3.	Employees covered	Staff who joined AFPS75 pre 6 April 2005 and did not opt to transfer at 6/4/06 in the Offer To Transfer
4.	Normal Pension Age (NPA)	Active members may retire with unreduced immediate pensions on attaining 16 years' service (for officers) and 22 years' service (for other ranks). The deferred pension age is 60 for benefits accrued prior to 6 April 2006 and age 65 for benefits accrued on or after 6 April 2006.
5.	Pensionable Pay (PP)	Representative Pay which is the same for members with same rank and service retiring in the same year, regardless of actual earnings. For 2 Star officers and above PP is actual basic pay.
6.	Averaging period for determining Final Pensionable Pay (FPP)	No averaging. Representative Pay or actual pay over final year prior to exit/retirement.
7.	Member's contributions	Non-contributory
8.	<u>Increase to pensions</u> - In payment - In deferment	 Index linked increases based on Pension Increase Orders. Only paid after age 55 (including increases earned before age 55). Index linked increases based on Pension Increase Orders
9.	<u>Benefits on retirement</u> Age retirement (1) Member pension (2) Lump sum Ill-health retirement – Non attributable (1) Member pension (2) Lump sum	 Full career pension (i.e. 48.5% of FPP) after 34 years' reckonable service as an officer or 37 years' reckonable service as an other rank. (Accrual over career is not uniform) 3 x member's pension Invaliding pension - based on length of service and may be enhanced if member has at least 5 years' reckonable service. 3 x member's invaliding pension

10.	Benefits on death in service (1) Lump sum (2) Spouse's/partner's pension (3) Spouse's short term pension	Max (lump sum that would have been paid on ill-health grounds, 3 x representative pay) 50% of the ill-health pension that the member would have received on date of death. A short term family pension is payable equal to full pay for the first 91 days of the widow(er)hood, extended to 182 days if there are children.
11.	Benefits on death after retirement (1) Lump sum (2) Spouse's/partner's pension (3) Spouse's short term pension	None 50% of member's pension on retirement Short term pension payable at the level of member's pension for the first 91 days of the widow(er) hood, extended to 182 days if there are children.
12.	Benefits on withdrawal - Less than 2 years' reckonable service - 2 or more years' reckonable service Immediate pension Preserved benefits Death before retirement (1) Lump sum (2) Spouse's/partner's pension Transfer value	No preserved pension, but can take transfer value equal to the value of the notional accrued pension Available to officers who have completed 16 years from age 21 or other ranks who have completed 22 years' service from age 18. Pension and lump sum payable from age 60 for pre-April 06 benefits and payable from age 65 for post-April 06 benefits. Preserved pensions are calculated as 3% of full career pension (ie 3% of 48.5%) for each year of service for officers and 2.75% of full career pension for each year of service for other ranks. 3 x member's preserved pension at death may be paid 50% of member's preserved pension Yes
13.	Children's pensions	One half of member's pension is divided equally between eligible children, with no one child receiving more than a quarter.
14.	Definition of partner	Spouse
15.	Cessation on remarriage	No

Table B2 – AFPS 05 (broadly similar provisions apply for RFPS)

1.	Type of scheme	Final salary
2.	Contracting out status prior to 2016	Contracted out
3.	Employees covered	New entrants on or after 6/4/05 and existing members who opted to transfer their earlier service on 6/4/06 in the Offer To Transfer
4.	Normal Pension Age (NPA)	55 from active service (but deferred pensions paid from 65)
5.	Pensionable pay (PP)	Basic pay (including that on Professional Aviator Spine) excluding any additional allowances.
6.	Averaging period for determining Final Pensionable Pay (FPP)	Highest amount of pensionable pay for 365 consecutive days' within the final 3 years of reckonable service with earlier tax years brought up to current value by application of the current appropriate indexation.
7.	Member's contributions	Non-contributory
8.	Increase to pensions - In payment - In deferment	 Index linked increases based on Pension Increase Orders. Only paid after age 55 (including increases earned before age 55). Index linked increases based on Pension Increase Orders
9.	Benefits on retirement Age retirement (1) Member pension (2) Lump sum Ill-health retirement Tier 1 - Medically discharged because unable to do service job but ability to get gainful employment is not deemed to be significantly impaired. Tier 2 - Discharged with condition that is not deemed to leave you permanently incapable of gainful employment, although employment prospects deemed to be significantly impaired. Tier 3- Discharged with a serious disability which it is deemed leaves you permanently incapable of any further full time employment.	 1/70th x FPP x reckonable service (max 40yrs) 3 x member's pension Either EDP benefits payable (see 12) OR a lump sum payable of 1/8 x PP x (Min(2,Max(6/12, Reckonable Service)) plus normal preserved pension and lump sum benefits payable at age 65 Benefits as on age retirement but with a service enhancement of one-third of the time remaining up to the normal retirement age of 55 Benefits as on age retirement but with a service enhancement of half the time remaining up to the normal retirement age of 55, with a minimum pension based on 20 years' service.
10.	Benefits on death in service (1) Lump sum (2) Spouse's/partner's pension (3) Spouse's short term pension	 4 x PP 62.5% of the member's pension as if they had been awarded a Tier 3 Ill Health pension None

11.	Benefits on death after retirement (1) Lump sum (2) Spouse's/partner's pension (3) Spouse's short term pension	5 year guarantee of member's pension less the amount of lump sum taken at retirement 62.5% of member's pension on retirement None
12.	Benefits on withdrawal - Less than 2 years' reckonable service	No preserved pension, but can take transfer value equal to the value of the notional accrued pension
	- 2 or more years' reckonable service Early departure payments (EDP) if over age 40 and served at least 18 years	EDP income payments up to age 65. Amount is 50% of preserved pension, plus 1.66% for each year served past EDP qualification point. Amount steps up to 75% of preserved pension at age 55. EDP lump sum of three times preserved pension. In addition to the EDP benefits a normal preserved pension and lump sum as for Age Retirement benefits will also be payable from age 65.
	Preserved benefits	Pension and lump sum as for Age Retirement benefits but payable from age 65.
	Death Before Retirement (1) Lump sum (2) Spouse's/partner's pension	 3 x member's preserved pension at death 62.5% of member's preserved pension
	Transfer Value	Yes
13.	Children's pensions Where a spouse's pension is payable	 1 child – 25% of member's pension 2 or more children – the difference between the member's pension and the spouse's pension is divided equally between the children.
	Where a spouse's pension is not payable	Up to 3 children – 33% of member's pension is payable to each child. 4 or more children – member's pension is equally divided between the children. Note: on death in service the child's pension is based on the ill health pension that the member would have received at the date of death.
14.	Definition of partner	Widow(er) Civil partner Eligible partner
15.	Cessation on remarriage	No

Table B3 – AFPS 15

1.	Type of scheme	Career average revalued earnings
2.	Contracting out status prior to 2016	Contracted out
3.	Employees covered	All regulars, reserves and members of non-regular permanent staff except Protected Members
4.	Normal Pension Age (NPA)	60 from active service (but deferred pensions paid from State Pension Age)
5.	Pensionable pay (PP)	Basic pay and any other amount to be treated as pensionable. Excludes allowances and additions in respect of particular duties.
6.	Averaging period for determining Final Pensionable Pay (FPP)	Highest amount of pensionable pay for 365 consecutive days' within the final 3 years of reckonable service with earlier tax years brought up to current value by application of Pension Increase Orders.
7.	Annual earned pension (AEP)	$1/47^{th}$ of PP for each scheme year
8.	Index adjustment in service (IA)	Based on Treasury orders, reflecting annual change in Average Weekly Earnings index.
9.	Member's contributions	Non-contributory
10.	Increase to pensions - In payment - In deferment	 Index linked increases based on Pension Increase Orders. Only paid after age 55 (including increases earned before age 55). Index linked increases based on Pension Increase Orders
11.	Benefits on retirement Age retirement (1) Member pension (2) Lump sum Ill-health retirement Tier 1 - Medically discharged because unable to do service job but ability to get gainful employment is not deemed to be significantly impaired. Tier 2 - Discharged with condition that is not deemed to leave you permanently incapable of gainful employment, although employment prospects deemed to be significantly impaired. Tier 3- Discharged with a serious disability which it is deemed leaves you permanently incapable of any further full time employment.	 The sum of each year's AEP revalued with the appropriate IAs to date of exit By commutation at 12:1 Either EDP benefits payable (see 14) OR a lump sum payable of 1/8 x FPP x Reckonable Service, with a minimum of ½ x FPP and a maximum of 2 x FPP plus normal preserved pension payable at State Pension Age Benefits as on age retirement but with an enhancement equivalent to one-third of the time remaining up to the normal pension age of 60 Benefits as on age retirement but with a service enhancement equivalent to half the time remaining up to the normal pension age of 60, with a minimum pension equivalent to the lesser of > 25 years' service > pensionable service plus prospective service to normal pension age.

12.	<u>Benefits on death in service</u> (1) Lump sum (2) Dependant's pension	 4 x FPP 62.5% of the member's pension as if they had been awarded a Tier 3 ill health pension
13.	<u>Benefits on death after retirement</u> (1) Lump sum (2) Dependant's pension	 5 year guarantee of member's pension after commutation 62.5% of member's pension after commutation
14.	<u>Benefits on withdrawal</u> - Less than 2 years' reckonable service	No preserved pension, but can take transfer value equal to the value of the notional accrued pension
	- 2 or more years' reckonable service	
	Early departure payments (EDP) if over age 40 and served at least 20 years	EDP income payments up to State Pension Age. Amount is 34% of preserved pension, plus 0.85% for each year served past EDP qualification point. EDP lump sum of 2.25 times preserved pension. In addition to the EDP benefits preserved benefits as for Age Retirement benefits will also be payable from State Pension Age.
	Preserved benefits	As for Age Retirement benefits but payable from State Pension Age.
	Death Before Retirement (1) Lump sum (2) Dependant's pension	 3 x member's preserved pension at death 62.5% of member's preserved pension
	Transfer Value	Yes
15.	<u>Children's pensions</u> Where a dependant's pension is payable	1 child – 25% of member's pension 2 or more children – the difference between the member's pension and the dependant's pension is divided equally between the children.
	Where a dependant's pension is not payable	Up to 3 children – 33% of member's pension is payable to each child. 4 or more children – member's pension is equally divided between the children. Note: on death in service the child's pension is based on the ill health pension that the member would have received at the date of death.
16.	Definition of dependant	Widow(er) Civil partner Eligible partner
17.	Cessation on remarriage	No

Notes:

> The above summaries show Non-Attributable benefits only.
> Attributable benefits are in addition to the above and are provided under the structure of the Armed Forces Compensation Scheme (AFCS) regardless of the pension scheme to which the member belongs
> Some specialist groups of employees (such as Professional Aviators) are entitled to additional supplement based benefits if they are members of AFPS 75

Appendix C: Notional assets and cashflows

C1 The Directions specify the calculation of the ***notional assets*** as at 31 March 2012. The calculation is set out in Table C1. Income and benefit payments have been derived from the AFPS Annual Accounts for each year and the relevant information is summarised in Table C2. The notional return credited each year in line with the return specified in the Directions is also shown. Income and expenditure is assumed to occur mid-year for the purposes of crediting the notional return.

Table C1: Notional assets

	£ billion Including pre-2001 pensioners	**£ billion Excluding pre-2001 pensioners**		**Direction**
Scheme Notional Assets at 31 March 2005	66.0	34.3	A	Schedule 2
Change in Scheme Notional Assets since in respect of:				
Income received	10.7	10.7	B	25
Benefits Paid	23.4	8.3	C	25
Notional Investment Returns	34.5	20.3	D	25
Scheme Notional Assets at 31 March 2012 (A + (B – C)) + D	**87.8**	**57.0**		**25**

Table C2: Cashflows

£ billion	**05/06**	**06/07**	**07/08**	**08/09**	**09/10**	**10/11**	**11/12**
Income	1.3	1.3	1.3	1.4	1.6	1.7	2.0
Benefit payments including pre-2001 pensioners	2.9	3.0	3.2	3.4	3.5	3.5	3.8
Notional investment returns including pre-2001 pensioners[38]	4.1	4.9	5.3	6.4	1.6	5.3	6.8
(%)	6.3%	7.2%	7.5%	8.7%	2.1%	6.7%	8.4%
Benefit payments excluding pre-2001 pensioners	0.8	0.9	1.1	1.2	1.3	1.4	1.6
Notional investment returns excluding pre-2001 pensioners	2.2	2.7	3.0	3.8	1.0	3.3	4.4

[38] Calculated in accordance with direction 25(4). In simple terms, the rate of return is the measure of price inflation (which can be negative) compounded with the net discount rate applying at the time.

C2 Future cashflows to the Scheme will comprise income and benefit payments. The liabilities set out in this report are based on the overall cashflows expected to arise in all future years based on the assumptions used. Over shorter time periods it is likely that actual cashflows will differ from those taken into account when considering the longer term. Given the sensitivity of cashflow projections to particular time periods they are required for, none are provided in this report. It is recognised cashflow projections based on the valuation data may be required for other purposes.

Appendix D: Events since the 2005 actuarial valuation

Main changes to Scheme benefits from 6 April 2005

D1 A new pension scheme, AFPS 05, was introduced for new members and some returning members, depending on the period of absence. The AFPS 75 remained in place, but with an increase in deferred pension age to 65 in respect of benefits accrued after 6 April 2006. Members of AFPS75 had a one-off option to transfer to AFPS 05. The benefits provided from both schemes are summarised in Appendix B.

D2 On 8 November 2014 the government announced a change in policy effective from 1 April 2015 in respect of remarriage cessation for AFPS 75. Remarriages after that date will no longer result in cessation of spouses' pensions, and applications for ceased pensions to be restored will no longer be subject to a means test. The relevant AFPS 75 legislation has been amended and accordingly the valuation results reflect this policy change.

Employer contributions

D3 Table D1 shows the employer contribution rates payable in the period since the 2005 valuation. These rates include an allowance for AFCS of approximately 2.4% of pay for other ranks and 1.0% of pay for officers. The Combined rates are for illustration only and assume that 26.5% of the payroll is in respect of officers (the proportion has remained relatively stable at around this level since 2005).

Table D1: employer contribution rates since the previous valuation

Year	Other ranks %	Officers %	Combined %
2005/06	21.8	36.3	25.6
2006/07	21.8	36.3	25.6
2007/08	21.8	36.3	25.6
2008/09	21.8	36.3	25.6
2009/10	23.8	38.3	27.6
2010/11	25.6	40.1	29.4
2011/12	30.8	42.8	34.0
2012/13	30.8	42.8	34.0
2013/14	30.8	42.8	34.0
2014/15	30.6	42.6	33.8

Pension increases

D4 The government announced that Consumer Price Index (CPI) rather than the Retail Price Index (RPI) would be used to set pension increases with effect from the April 2011 increase. The financial assumptions were amended accordingly as set out in Appendix E. The actual rate of increase awarded since the 2005 valuation are set out in Table D3. The known rates of increase awarded since the ***effective date*** are also shown. These have been taken into account in the valuation.

Table D3: pension increases since the previous valuation

Year	Pension Increase
April 2005	3.1%
April 2006	2.7%
April 2007	3.6%
April 2008	3.9%
April 2009	5.0%
April 2010	0%
April 2011	3.1%
April 2012	5.2%
April 2013	2.2%
April 2014	2.7%

Appendix E: Summary of assumptions

Table E1: Financial assumptions at current and previous valuation

	Current valuation 31 March 2012					Previous valuation 31 March 2005
Discount rate	3% pa real; 5.06% pa nominal					3.5% pa real; 6.5% pa nominal
Pension increases	2% pa					2.9% pa
Long term salary growth	4.75% pa, 2.75% pa in excess of assumed CPI					4.4% pa, 1.5% pa in excess of assumed RPI
Average weekly earnings growth[39]	4.75% pa, 2.75 pa in excess of assumed CPI					n/a
Short term variations in assumptions	Year	Gross discount rate	Pension increases	Salary growth	Average weekly earnings growth	None
	2012/13	5.27%	2.2%	1.8%	n/a	
	2013/14	5.78%	2.7%	0.5%	n/a	
	2014/15	5.27%	2.2%	1.5%	n/a	
	2015/16	5.16%	2.1%	2.0%	3.4%	
	2016/17	n/a	n/a	2.5%	3.6%	
	2017/18	n/a	n/a	3.0%	3.7%	
	2018/19	n/a	n/a	3.0%	3.7%	

Demographic assumptions

E1 Full details of the demographic assumptions are provided in the report *Armed Forces pension arrangements: Valuation as at 31 March 2012: Advice on assumptions* dated 24 February 2015. Sample rates and values are provided below. If not otherwise stated, tables are unisex.

[39] Used for in-service revaluation in AFPS 15.

Pensioner mortality

Table E2: Baseline mortality assumptions

Group	Officers	Other ranks
Normal health pensioners	88% of S1NXA	118% of S1NXA
Existing ill-health pensioners	88% of S1NXA	118% of S1NXA
Future ill-health pensioners	88% of S1NXA	118% of S1NXA
Dependants	88% of S1NXA	118% of S1NXA

E2 As specified by HMT, future improvements in mortality will be assumed to be in line with those underlying the ONS 2012-based population projections.

E3 Resultant expectations of life are shown in Table E3 together with comparative figures for the previous valuation.

Table E3: Comparison of life expectancies (years)

	2005 valuation[40]	2012 valuation
Officers		
Current pensioners		
Male aged 55	31.0	34.3
Male aged 65	21.0	24.3
Female aged 55	34.0	36.9
Female aged 65	24.0	26.8
Future pensioners - current age 40		
Male life expectancy from age 55	31.9	36.2
Male life expectancy from age 65	22.3	27.0
Female life expectancy from age 55	34.9	38.7
Female life expectancy from age 65	25.3	29.5
Other Ranks		
Current pensioners		
Male aged 55	29.1	31.5
Male aged 65	19.2	21.7
Female aged 55	32.1	34.0
Female aged 65	22.2	24.2
Future pensioners - current age 40		
Male life expectancy from age 55	30.0	33.4
Male life expectancy from age 65	20.5	24.4
Female life expectancy from age 55	32.9	35.8
Female life expectancy from age 65	23.4	26.9

[40] These relate to normal health pensioners.

Age retirement from service

Table E4: Age retirement rates for members with transitional protection

Age	AFPS 75 officers	AFPS 75 other ranks	AFPS 05 officers	AFPS 05 other ranks
40	0.100	0.000	0.000	0.500
41	0.070	0.500	0.000	0.200
42	0.060	0.200	0.230	0.200
43	0.050	0.200	0.050	0.200
44	0.050	0.200	0.050	0.200
45	0.050	0.150	0.050	0.150
46	0.050	0.150	0.050	0.150
47	0.050	0.150	0.050	0.150
48	0.050	0.150	0.050	0.150
49	0.100	0.150	0.100	0.150
50	0.150	0.150	0.150	0.150
51	0.150	0.200	0.150	0.200
52	0.150	0.150	0.150	0.150
53	0.150	0.150	0.150	0.150
54	0.200	0.200	0.200	0.200
55	1.000	1.000	1.000	1.000

Table E5: Age retirement rates for new entrants after 31 March 2015 joining the 2015 scheme

Age	Officers	Other ranks
40	0.000	0.500
41	0.000	0.200
42	0.000	0.200
43	0.000	0.200
44	0.307	0.200
45	0.050	0.150
46	0.050	0.150
47	0.050	0.150
48	0.050	0.150
49	0.100	0.150
50	0.150	0.150
51	0.150	0.200
52	0.150	0.150
53	0.150	0.150
54	0.200	0.200
55	0.200	0.200
56	0.200	0.200
57	0.200	0.200
58	0.200	0.200
59	0.200	0.200
60	1.000	1.000

Table E6: Age retirement rates for members with service in both AFPS75 and the 2015 scheme

Age	Officers	Other ranks
40	0.075	0.125
41	0.053	0.425
42	0.045	0.200
43	0.038	0.200
44	0.114	0.200
45	0.050	0.150
46	0.050	0.150
47	0.050	0.150
48	0.050	0.150
49	0.100	0.150
50	0.150	0.150
51	0.150	0.200
52	0.150	0.150
53	0.150	0.150
54	0.200	0.200
55	0.800	0.800
56	0.200	0.200
57	0.200	0.200
58	0.200	0.200
59	0.200	0.200
60	1.000	1.000

Table E7: Age retirement rates for members with service in both AFPS05 and the 2015 scheme

Age	Officers	Other ranks
40	0.000	0.500
41	0.000	0.200
42	0.058	0.200
43	0.013	0.200
44	0.243	0.200
45	0.050	0.150
46	0.050	0.150
47	0.050	0.150
48	0.050	0.150
49	0.100	0.150
50	0.150	0.150
51	0.150	0.200
52	0.150	0.150
53	0.150	0.150
54	0.200	0.200
55	0.400	0.400
56	0.200	0.200
57	0.200	0.200
58	0.200	0.200
59	0.200	0.200
60	1.000	1.000

Ill-health retirement from service (non-attributable)

Table E8: Ill-health retirement rates (non-attributable) for all members

Age	Officers	Other ranks
20	0.000	0.006
25	0.002	0.007
30	0.002	0.007
35	0.002	0.007
40	0.002	0.007
45	0.003	0.008
50	0.004	0.010
55	0.005	0.011

E4 For AFPS05 and 2015 scheme ill-health retirements, 40% are assumed to be on Tier 1, 20% on Tier 2 and 40% on Tier 3.

Withdrawal from service (without entitlement to immediate benefits)

Table E9: Withdrawal rates for all members

Age	Officers	Other ranks
20	0.000	0.125
25	0.020	0.105
30	0.045	0.045
35	0.025	0.020
40	0.005[41]	0.010[42]
45+	0.000	0.000

Commutation of pension for cash at retirement

E5 Members of the 2015 scheme are assumed to commute 15% of their 2015 scheme pension for cash. No allowance is made for any other commutation options.

[41] 0.000 for AFPS 75 members due to IP entitlement
[42] 0.000 for AFPS 05 and AFPS 15 members due to EDP entitlement

Death before retirement

Table E10: Death before retirement rates for all members

Age	Males	Females
20	0.0004	0.0002
25	0.0005	0.0002
30	0.0006	0.0003
35	0.0009	0.0004
40	0.0012	0.0007
45	0.0017	0.0010
50	0.0025	0.0017
55	0.0040	0.0025

Promotional pay increases

Table E11: Promotional salary scales for members

E6 The salary scale shows assumed pay progression in excess of general wage inflation in comparison to an index base of 100 at entry (age 24 for officers and 19 for other ranks).

	AFPS 05, 2015 scheme and AFPS 75 pensionable pay		AFPS 75 representative pay	
Age	Officers	Other ranks	Officers	Other ranks
20		116		100
25	116	165	100	104
30	161	205	102	117
35	193	237	114	128
40	218	269	126	141
45	236	271	139	145
50	266	286	159	153
55	280	298	177	153
60	280	298	177	153

Family statistics

Table E12: Proportion married at retirement for future pensioners in AFPS75

	Officers	Other ranks
Males	90%	85%
Females	65%	60%

Table E13: Proportion married for current pensioners (at the effective date) in AFPS75

	Officers		Other ranks	
Age	**Males**	**Females**	**Males**	**Females**
50	89%	60%	80%	54%
60	94%	65%	88%	60%
70	93%	52%	88%	48%
80	78%	26%	73%	24%
90	44%	8%	42%	7%

E7 Proportions partnered (for AFPS05 and the 2015 scheme) are assumed to be 5% higher than proportions married at retirement, with consistent assumptions for current pensioners.

E8 Male members are assumed to be three years older than their partners and female members are assumed to be two years younger than their partners.

Appendix F: Summary of methodology and calculations

Methodology

F1 The Directions specify the use of the projected unit methodology and that benefits should be attributed to periods of service in accordance with the requirements of International Accounting Standard 19: Employee Benefits.

F2 Since the expected cost of benefits provided to members remaining in the existing scheme differs from the expected cost of providing those members with benefits in the 2015 scheme, and the expected cost of providing benefits varies for members with differing benefit provisions within the existing pension arrangements, projecting the membership gives a materially different estimate of the valuation result.

F3 We have projected the membership over the period from the ***effective date*** until the end of the implementation period so that the overall profile in terms of distribution of payroll by age, gender and officer/other rank remains stable. The overall membership has then been scaled down so that the total payroll is consistent with MoD's paybill projections provided to OBR in autumn 2014. The membership projections make allowance for the changing split of membership by scheme up to the end of the implementation period. Full details of the membership projection is provided in the report *Armed Forces pension arrangements: Actuarial valuation as at 31 March 2012: Report on methodology* dated 24 February 2015.

Calculations

F4 The following provides a brief explanation of the actuarial calculations used to derive the ***valuation results***.

Scheme benefits

F5 First, an estimate is made of the amount of benefit to be received by each scheme member (and their dependants, where applicable) over each future year of the Scheme, from the ***effective date*** onwards. In order to do that, it is necessary to make some assumptions about the future service and salaries of the scheme members, and the length of time over which they will receive benefits. (More information about the assumptions is set out in Appendix E.)

F6 Having estimated the benefits as a stream of projected cashflows from the ***effective date*** onwards, the second step is to calculate the capital sum which would need to be held at the ***effective date*** in order to pay all of the benefits. This requires an assumption to be made as to rate of return which would be earned by the capital sum if it were invested. In the case of the Scheme, there is no actual sum of money, but the valuation approach is predicated on the premise that there is a notional fund with a notional investment return.

F7 This capital sum is often referred to as the 'present value' of the benefits and is calculated by 'discounting' the future cashflows back to the ***effective date*** using the valuation discount rate (see Appendix E). The present value can alternatively be considered as the amount of money which would need to be invested at an assumed interest rate (equal to the discount rate) in order to pay all the benefits. The result of the calculation is, by its nature, a planning or budgeting estimate, not a 'valuation' as such.

Calculations

F8 For the valuation, it is necessary to separate the capital sum into two parts: (i) the sum needed to pay out benefits which relate to service *prior to* the ***effective date*** ('past service'), and (ii) the sum needed to pay out those benefits which relate to service *after* the ***effective date*** ('future service').

Past service position

F9 In relation to the past service element, we compare the capital sum (or present value) relating to past service with the balance in the notional fund at the ***effective date***. If all the assumptions made during previous reviews had been borne out exactly, and assuming no errors in previous data sets are revealed, the notional fund would exactly equal the capital sum now needed to pay for those past service benefits. But, if actual events have differed from the assumptions made, then the notional fund will exceed, or fall short of, the capital sum now estimated to be needed.

F10 To the extent that the notional fund is *less* than the capital sum needed to pay out all the benefits relating to past service, the fund is said to be in *deficit*. This deficit needs to be met by additional contributions. If the notional fund *exceeds* the capital sum required for past service benefits, it is said to be in *surplus* and there would be a reduction in the contributions that would otherwise be paid for future service.

Future contributions

F11 To arrive at the level of contributions required to meet benefits estimated to arise out of future service, we calculate the percentage of total pensionable pay which, if paid from the ***effective date*** onwards, would be sufficient to make up the capital sum needed to pay out the benefits. (Or, using the terminology from above, we calculate the contribution rate which has the same 'present value' as the benefit stream which the contributions will pay for.) In making this calculation, we adopt the same assumptions that we mentioned above regarding the future service and salaries of the scheme members and the rate of return which would be earned by the capital sum if it were invested.

Appendix G: The cost cap mechanism

G1 This report recommends an ***employer contribution rate*** and proposes an ***employer cost cap*** (the ***valuation results***) based on a number of assumptions about the future. Section 7 outlines the main reasons why future ***valuation results*** may differ from the results shown in this report. This section gives further information on the cost cap mechanism and the factors which may influence the level of contributions payable by, or amount of benefits payable to, members at future valuations.

Allocation of cost savings/increases at future valuations

G2 The cost cap mechanism specifies that:

a. if the ***cost cap cost of the scheme*** determined at a future valuation differs from the ***employer cost cap*** by more than 2% of pay, then member benefits will be adjusted or member contributions introduced/adjusted. (The employer contribution rate will be determined based on the adjusted member benefits/contributions.)

b. if the ***cost cap cost of the scheme*** is within 2% of the ***employer cost cap***, then member benefits and contributions will not be adjusted. The employer will meet the balance of the cost of benefits as assessed at future valuations.

Liabilities considered for future valuation results

G3 The ***employer contribution rate*** takes into account the whole of the aggregate scheme's liabilities ie those attributable to all service in both the existing and 2015 schemes, with the exception of liabilities in relation to members whose pensions commenced prior to 1 April 2001 and their dependants.

G4 Only part of the aggregate scheme's liabilities are considered for the calculation of the ***cost cap cost of the scheme***. In particular the ***cost cap fund*** is intended to exclude costs relating to deferred and pensioner members of the existing schemes. More detail is set out in paragraphs 2.24 to 2.27 of *Public service pensions: actuarial valuations and the employer cost cap mechanism*.

G5 The prior value of the ***cost cap fund*** will be first determined at the actuarial valuation due to be carried out as at 31 March 2016. This will be based on the scheme's liabilities only for members who are active (that is, still in employment) as at 31 March 2015. As members with existing scheme benefits progressively leave active service, their liability will move outside the ***cost cap fund***. Of the liabilities expected to establish the cost cap fund as at 31 March 2015 a significant proportion of the liabilities will relate to members who are expected to exit pensionable service in the relatively short term. Over this period, the cost cap mechanism may therefore be exposed to significant variations in pay experience and retirement patterns.

G6 Over the longer term, the cost cap mechanism will become relatively more sensitive to other demographic assumptions, particularly rates of retirement and withdrawal from service and the impact of this on the age profile of the active membership. The ***cost cap cost of the scheme*** is also sensitive to changes in longevity expectations. Initially, this only relates to active members but once members with 2015 scheme service have retired, then any changes in expectations of their longevity will also have an impact on the ***cost cap cost of the scheme***. The normal pension age of the 2015 scheme (initially 60) is subject to regular review. These reviews will consider increases to State Pension Age, which are intended to vary in line with longevity expectations, but will also consider other factors. Therefore, costs from increasing longevity may well not be exactly met by changes to the normal pension age.

G7 More information about the employer cost cap mechanism can be found in *Public service pensions: actuarial valuations and the employer cost cap mechanism* published by HMT in March 2014.

Appendix H: Location of material required by Directions

Direction	Description	Location
21(a)(i), (ii)	Summary of membership data and checks carried out	Appendix A *Armed Forces pension arrangements: Report on membership data as at 31 March 2012* dated 24 February 2015
21(a)(iii)	Adjustments made to data Projections made	*Armed Forces pension arrangements: Report on membership data as at 31 March 2012* dated 24 February 2015 *Armed Forces pension arrangements: Actuarial valuation as at 31 March 2012: Report on methodology* dated 24 February 2015
21(b)	Average age of active members	Appendix A1
21(c)	Statement of compliance with directions	Paragraph 2.4
21(d)	Summary of regulations, directions and professional standards	Paragraphs 2.4-2.6, GAD website
21(e)	Summary of main provisions of the schemes	Appendix B *Armed Forces pension arrangements: Report on membership data as at 31 March 2012* dated 24 February 2015
21(f)	Analysis of demographic experience	*Armed Forces pension arrangements: Actuarial valuation as at 31 March 2012: Advice on assumptions* dated 24 February 2015 *Armed Forces pension arrangements: Actuarial valuation as at 31 March 2012: Report on data used for experience analysis* dated 24 February 2015
21(g)(i), (ii)	Statement of assumptions, including rationale	*Armed Forces pension arrangements: Actuarial valuation as at 31 March 2012: Advice on assumptions* dated 24 February 2015 See also Appendix E of this report
21(g)(iii)	Illustration of sensitivity to assumptions	Section 6
21(h)	Other liabilities valued	None
22(a), (b)	Valuation balance sheet	Section 4, Table 4.1
22(c)	Notional asset cashflows	Appendix C, Table C2
22(d), (e), (f)	Contribution rates	Section 4, Table 4.3
53	***Proposed employer cost cap***	Section 4, Table 4.4

Appendix I: Limitations

I1 This report is intended solely for the use of the Ministry of Defence for the purposes of determining the ***employer contribution rate*** payable for the period 1 April 2015 to 31 March 2019, and the initial ***employer cost cap***, which is to be set in regulations. The information and advice in this report should not be relied upon, or assumed to be appropriate, for any other purpose or by any other person. GAD does not accept any liability to third parties, whether or not GAD has agreed to the disclosure of its advice to the third party.

I2 We are content for the Secretary of State to release this report to third parties, provided that:

- it is released in full
- the advice is not quoted selectively or partially
- GAD is identified as the source of the report, and
- GAD is notified of such release.

I3 Third parties whose interests may differ from those of the Secretary of State should be encouraged to seek their own actuarial advice where appropriate. GAD has no liability to any person or third party for any act or omission taken, either in whole or in part, on the basis of this report.

I4 GAD is not responsible for any decision taken by the Ministry of Defence, except to the extent that the decision has been made in accordance with specific advice provided by GAD. Advice provided by GAD must be taken in context and is intended to be read and used as a whole, not in parts. GAD does not accept responsibility for advice that is altered or used selectively. No significant action should be taken based on oral advice alone. Clarification should be sought if there is any doubt about the intention or scope of advice provided by GAD.

I5 GAD relies on the accuracy of data and information provided by Defence Business Services (DBS). GAD does not accept responsibility for advice based on wrong or incomplete data or information provided by DBS or the Ministry of Defence.