

# Comparative Valuation of the Armed Forces' Pension Schemes 2006

*Prepared by:*

*Watson Wyatt Limited  
(Actuaries & Consultants)  
15 February 2007*



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## *To the Armed Forces' Pay Review Body ("the AFPRB")*

This report, together with the technical appendices, sets out the key results of our comparative valuation of the benefits provided by the Armed Forces' Pension Schemes (AFPS) with those provided by comparator pension schemes in the civilian sector. We now have pleasure in submitting our report which we trust will provide the AFPRB with sufficient clear guidance to enable them to recommend the appropriate pension adjustment or adjustments to be used for pay comparability purposes.

There has been a significant amount of change in the occupational pensions environment since the previous comparative valuation which we carried out in 2000. This was discussed in our report entitled "Occupational Pensions Research" dated 4 November 2005 produced for the AFPRB. Changes include the introduction of the Armed Forces Pension Scheme 2005 ("the AFPS05"), changes to the benefits provided by the Armed Forces' Pension Scheme 1975 ("the AFPS75"), changes to the comparator benefits provided in the civilian sector and changes to the profile of the Armed Forces. There have also been changes made to the methodology and assumptions since the 2000 valuation. This report discusses the quantitative impact of these changes on the pension adjustment for pay comparability purposes and comments on any future changes which might affect the adjustment.

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# 1 Management Summary

- 1.1 The aim of the comparative valuation is to compare the cost of providing a member of the Armed Forces with the benefits in the AFPS, as opposed to the benefits that would be provided to comparators in civilian pension scheme arrangements.
- 1.2 The results of the previous comparative valuation in 2000 (as set out in our report dated December 2000) suggested a reduction in the then current pension adjustment for pay comparability purposes from 7% to 6% of comparator pay. However the report also commented that future trends suggested an upwards move in the adjustment over time and therefore the AFPRB concluded that it would be reasonable to retain the 7% adjustment. A recap of the 2000 results is given in Section 3 of this report.
- 1.3 Since the 2000 valuation, there has been significant change in the occupational pensions environment. This was discussed in our report entitled “Occupational Pensions Research” dated 4 November 2005. The main factors which impact the pension adjustment are:
- Changes to the Armed Forces’ Pension Scheme benefits - the changes to the AFPS75 have reduced the pension adjustment. The introduction of the AFPS05 has not had a significant effect on the pension adjustment as the overall value is similar to the AFPS75 (see Section 4 of this report).
  - Changes to the comparator scheme benefits - the level of comparator benefits has reduced for officers but increased for other ranks based on the data provided (see Section 5 of this report). However, the database reflects benefits provided to new hires, whereas the comparative valuation is intended to consider the benefits for existing employees, and therefore the results have been re-weighted (see Section 9 of this report).
  - Changes to the assumptions and methodology adopted - the main changes made have been a reduction in the assumed rate of investment return relative to price inflation and changes to the assumed rates of turnover. These have in general increased the value placed on both the Armed Forces and comparator benefits (see Section 6 of this report).
  - Changes to the profile of the Armed Forces - these have had a minimal impact on the pension adjustment (see Section 8 of this report).
- 1.4 The results of our calculations for the 2006 comparative valuation (as summarised in this report) suggest that a reduction in the current pension adjustment for pay comparability purposes to 4% of comparator pay for the next few years (assuming a uniform adjustment across all ranks) could be justified.

- 1.5 The pension adjustment resulting from our calculations for officers has decreased from 5% to 4% and that for other ranks from 7% to 4%. A range of adjustments could be considered if it is intended to use different adjustments for pay comparability for different ranks. For officers the range is from just below zero to 6%, for other ranks the range is around 1½% to 4½%. The full results on the proposed methodology and assumptions are set in Section 10 of this report and Appendix L of the technical appendices.
- 1.6 One key aspect of the methodology which, after discussion with the OME and the AFPRB, has not been changed is the treatment of pension payable after the Immediate Pension Point in the AFPS75. As in the 1995 and 2000 comparative valuations, 50% of such pension has been taken into account with the remainder being assumed to be compensation for a short career. A consistent approach has been adopted for the AFPS05 (see Section 7 of this report and Appendices M and N of the technical appendices).
- 1.7 It may be expected that the relative value placed on comparator benefits will reduce over time as a result of changes in the weighting (towards defined contribution schemes) and as more changes to civilian benefits are introduced for both new hires and existing members. This is expected to result in the pension adjustment calculated at future valuations tending to increase (see Section 11 of this report).

# 2 Introduction

## **Purpose of the comparative valuation**

- 2.1 The purpose of a comparative valuation of the Armed Forces' pension arrangements is to provide the AFPRB with clear guidance as to how the value of those arrangements differ from those provided by comparator pension schemes. This enables the AFPRB to adjust the comparator earnings figures when setting pay levels to take account of the relative value of the AFPS benefits compared with those of the comparator pension schemes.

## **Previous valuations**

- 2.2 Since comparisons commenced in 1981, the pension adjustments recommended by the AFPRB have been as follows:

1981	11% of comparator pay
1986	10% of comparator pay
1991	9% of comparator pay
1996	8% of comparator pay
1997	7% of comparator pay
2000	7% of comparator pay

- 2.3 The previous valuation was carried out in 2000 and the conclusions were set out in our report dated December 2000. This report concluded that a reduction in the pension adjustment from 7% to 6% of comparator pay could be justified. However, given that the report also commented that future trends, particularly in the benefits provided by comparator pension schemes, might suggest an upward move in the pension adjustment in future, the AFPRB concluded that it would be reasonable to maintain the 7% adjustment. Further details of the results of the 2000 valuation are set out in Section 3 of this report.

## **Objectives and basic principles**

- 2.4 It is important that the methodology used in the comparative valuation is consistent with the objectives. In Section 3.3 of our report "Occupational Pensions Research" dated 4 November 2005, we suggested that the objective for the comparative valuation might be stated as follows:

*"The objective of the comparative valuation is to compare the cost of providing a member of the Armed Forces with:*

- *the pension entitlements actually provided within the Armed Forces' arrangements, as opposed to*
- *the employer financed element of the pension entitlements that would be provided if the benefits were amended to reflect the design of the comparator civilian sector arrangements.*

*The values should be determined as the cost to the employer of providing the benefits the members actually receive calculated on a best estimate basis, while not being overly dependent on market conditions at the point of calculation."*

2.5 With this in mind, the method and assumptions adopted for this comparative valuation have been chosen so as to:

- place a best estimate value on the benefits (ie without specific margins for prudence)
- focus on the employer financed component of the benefits only
- look at the cost to the employer of providing the actual benefits, rather than focusing on the value to the member
- consider only the level of benefits promised and not consider the chance of non-payment of those benefits (for example, as a result of the insolvency of the employer sponsor in a private sector scheme)
- be based on long-term assumptions, rather than being dependent on market conditions when the calculations are carried out.

2.6 These are consistent with the objectives underlying the 1995 and 2000 comparative valuations.

# 3 Recap of the results of the 2000 comparative valuation

- 3.1 The results of the 2000 comparative valuation (as set out in our report dated December 2000) suggested that a pension adjustment of 6% of comparator pay would be the most appropriate and fair adjustment to apply over the next few years, assuming a uniform pension adjustment for all members of the Armed Forces.
- 3.2 Table 1 below shows the 2000 results averaged in line with the salary distribution of the Armed Forces and assuming that 50% of the benefits payable from the Immediate Pension Point (IPP) and before age 60 were included as pension in the comparison.

**Table 1**

	<b>Officers</b>	<b>Other ranks</b>
	<b>%</b>	<b>%</b>
Average value of AFPS benefits	23.9	17.6
Average value of comparator benefits	17.2	9.1
Average value of AFPS benefits above comparator benefits	5.2	7.2

Note: that the difference between the value of the AFPS benefits and the comparator benefits is calculated individually as described in Appendix G of the technical appendices to this report and then averaged.

- 3.3 The results varied significantly by age and rank and by the extent to which allowance was made for the AFPS immediate retirement benefits payable from the IPP.
- 3.4 The 2000 report commented that trends over the period to the next review may be expected to increase the pension adjustment. In particular there was expected to be a continued scaling down of the benefit provided by comparator schemes in the private sector which was expected to give rise to a slight increase in the pension adjustment.
- 3.5 Taking these results of the comparative valuation into consideration together with an expectation of the change that might occur over the following five years, the AFPRB decided it would maintain the pension adjustment used in pay comparability at 7%.

# 4 Changes to the benefits provided by the AFPS

4.1 The benefits provided by the AFPS are set out in legislation. The AFPS is non-contributory in the sense that no contributions are explicitly deducted from salaries. Salaries are set, however, having regard to the value of benefits provided by the AFPS relative to comparator pension benefits. Members of the AFPS are contracted out of the Second State Pension.

## Armed Forces' Pension Scheme 1975

4.2 Regular Armed Forces' personnel who commenced service prior to 6 April 2005 were generally eligible for membership of the Armed Forces' Pension Scheme (AFPS75). The AFPS75 provides pension and lump sum benefits to members and their dependants in a variety of circumstances such as retirement, withdrawal from service, non-attributable death in service and incapacity.

4.3 The results of the 2000 comparative valuation were based upon the provisions of the AFPS75. There have been a number of changes to these since the 2000 comparative valuation:

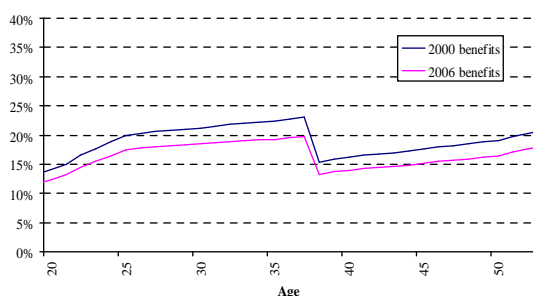
- For benefits built up after 5 April 2006, the earliest age at which members who leave service with a preserved pension and lump sum have the right to receive those benefits paid without reduction was increased from 60 to 65;
- The lump sum paid on non-attributable death in service was increased to 3 times representative pay;
- The definition of adult dependant was broadened slightly.

4.4 These changes have affected the value placed on the AFPS75 for pay comparability purposes. However, the extent of the effect of the change in AFPS75 benefits since the 2000 comparative valuation depends on the proportion of the AFPS retirement benefits payable before the deferred pension vesting age (60 in 2000, 65 in 2006) brought into account.

4.5 This is illustrated in charts 1 and 2 below which illustrate the change in value by age for officers, under the method and assumptions adopted for the 2000 comparative valuation - a similar effect is found for other ranks.

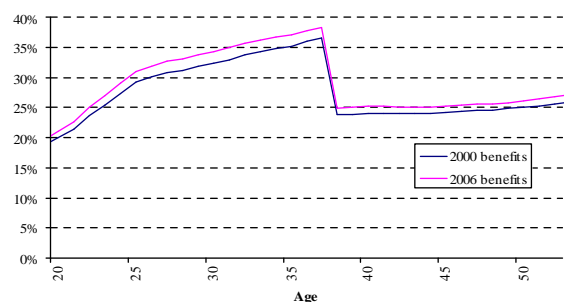
**Chart 1**

Value of officers AFPS75 benefits as a percentage of Basic Salary  
0% of immediate pension value d



**Chart 2**

Value of officers AFPS75 benefits as a percentage of Basic Salary  
100% of immediate pension valued



- 4.6 The results of the 2000 comparative valuation brought into account 50% of the AFPS retirement benefits payable before the deferred pension vesting age of 60. If the (then unknown) changes to the AFPS75 had been allowed for at the 2000 comparative valuation, taking into account 50% of the AFPS retirement benefits payable before the new deferred pension vesting age of 65, the value of the AFPS75 for pay comparability purposes would have reduced from 23.9% to 23.3% for officers and from 17.6% to 16.4% for other ranks.

### **Introduction of the Armed Forces' Pension Scheme 2005**

- 4.7 With effect from 6 April 2005, new recruits to the Regular Armed Forces have been eligible to join the Armed Forces' Pension Scheme 2005 (AFPS05) which provides pension and lump sum benefits in similar circumstances to those of the AFPS75.
- 4.8 Members of the AFPS75 were given the opportunity during 2005 to transfer to the AFPS05 (with effect from 1 April 2006). We understand from OME that around 7.5% of the membership of the AFPS75 took advantage of this opportunity.
- 4.9 A detailed summary of the benefits provided in these two distinct arrangements is provided in Appendix A of the technical appendices to this report.
- 4.10 An overview of the main differences between the two arrangements shown in Table 2 below.

**Table 2**

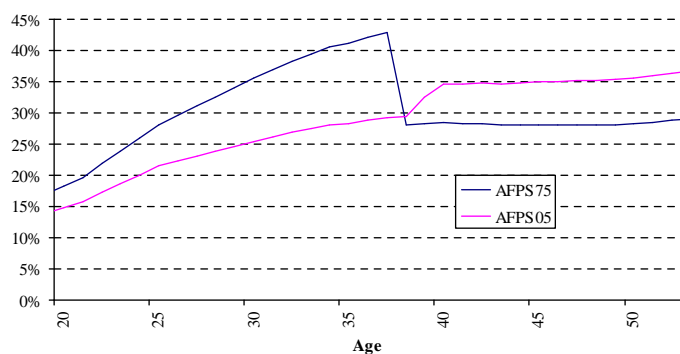
<b>AFPS75</b>	<b>AFPS05</b>
Officers and Other Ranks accrue benefits at different rates, but both have a target full career pension of 48.5% of pay at age 55.	There is no distinction between Officers and Other Ranks, both uniformly accruing benefits with a target full career pension of 50% of pay at age 55.
Benefits accrue at an accelerated rate until a point based on service (the "Immediate Pension Point").	Pension benefits accrue at a uniform rate whilst a member of the AFPS05.
Service prior to age 21 (age 18 for Other Ranks) is not pensionable.	All service is pensionable.
The definition of pay used to calculate benefits is based upon a "representative pay" that is the same for members of the same	The principle of "all of one company" has been removed, and benefits are based upon an individual's actual pay (excluding

AFPS75	AFPS05
rank, regardless of differences in actual pay.	specified elements such as specialist pay).
Personnel leaving at the request of the Armed Forces with more than 16 years' service (22 years for Other Ranks) receive an immediate <b>pension</b> equal to their accrued pension and a separate lump sum equal to 3 times the immediate pension.	A separate arrangement has been established outside of the AFPS to provide an <b>income</b> and lump sum to personnel leaving at the request of the Armed Forces, provided they have attained at least age 40 and have over 18 years' service. The income may be lower than that provided by the AFPS75, dependent on individual circumstances.
On death, qualifying dependants receive an income broadly equal to 50% of the member's benefit. On death in service a lump sum of 3 times representative pay is provided.	The definition of qualifying dependants is broader and the income (62.5%) and lump sum (4 times) is higher.

- 4.11 There are also a number of differences in the non-attributable incapacity benefits provided. These are also summarised in Appendix A of the technical appendices to this report.
- 4.12 Further details on the benefits provided on leaving Armed Forces' Service before age 65, but after a specified age (the "Immediate Pension Point" or "Early Departure Point"), are provided in Section 7 of this report. In Section 9 we consider how the 2006 comparative valuation could allow for the existence of two AFPS arrangements.
- 4.13 The charts below compare the value of the AFPS75 and AFPS05 by age, using the method and assumptions proposed for the 2006 comparative valuation (as detailed in Section 6):

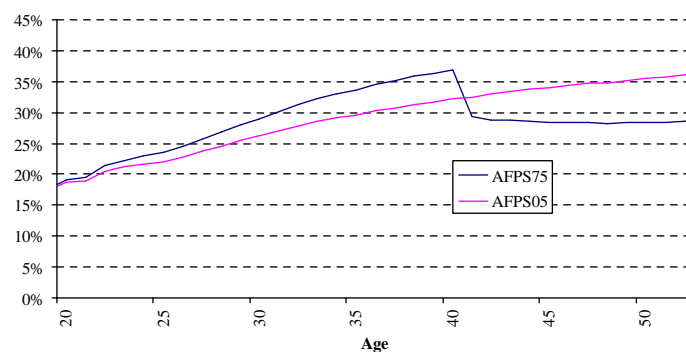
**Chart 3**

Value of AFPS Benefits as a percentage of Basic Salary  
Officers



**Chart 4**

Value of AFPS Benefits as a percentage of Basic Salary  
Other Ranks



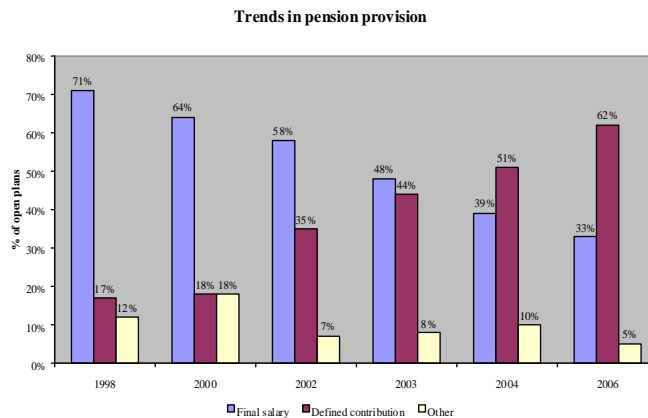
- 4.14 The above charts illustrate the non-uniform accrual rate applying to members of the AFPS75, shown by the step at the "Immediate Pension Point" (assumed to be age 37 for officers and age 40 for other ranks). It also highlights that officers and other ranks build up benefits at broadly the same rate in the AFPS75 after the Immediate Pension Point.

# 5 Changes to civilian benefits since 2000

## Changes to civilian pension benefits

- 5.1 In our 2005 report, “Occupational Pensions Research”, we provided detailed analysis and advice on changes in occupational pension provision since the 2000 comparative valuation, noting that the pace of change, particularly in the private sector, has been rapid.
- 5.2 The most significant change over the period has been the continued growth of defined contribution arrangements within the private sector. This is illustrated in Chart 5 below taken from the Watson Wyatt 2006 Plan Design Survey. In 2006, 62% of the surveyed organisations provided new hires with defined contribution benefits compared to a figure of 18% in 2000.

**Chart 5**



- 5.3 However, among the appropriate comparator group for the comparative valuation, we would expect the shift towards defined contribution benefits to be less marked as:
- the comparators include public sector schemes which continue to provide defined benefits
  - among the population as a whole, the shift towards defined contribution benefits has been less significant than has been the case among new hires (ie many companies which have opened a defined contribution scheme for new hires have retained the previous defined benefit scheme for those individuals who were already a member of the scheme, leading to a “two-tier” workforce).
- 5.4 This is supported by the Twelfth Survey of Occupational Pension Schemes by the Government Actuary which found that in 2004 around 75% of active members of private sector occupational pension schemes were in a defined benefit scheme, rising to just under 90% after allowance is made for public sector employees. However, these figures are expected to fall over time as a result of employee turnover and as

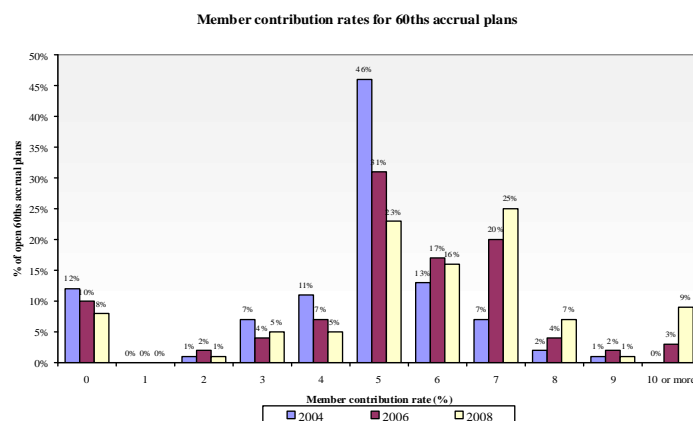
more employers elect to close defined benefit schemes for future accrual for existing members.

5.5 The implications of the “two-tier” workforce for the comparative valuation are discussed further below.

5.6 In addition to the closure of defined benefit schemes to new employees, many other occupational pension schemes have seen changes made with the intention of:

- reducing the level of benefits provided, for example through changes to the retirement age or the rate at which benefits accrue
- increasing the level of contributions that members are required to pay, as is illustrated in chart 6 below which was taken from the Watson Wyatt 2006 Plan Design Survey.

**Chart 6**



**Comparator data**

5.7 For this comparative valuation, data for comparator pension schemes for both officers and other ranks was provided by HayGroup. We understand that the data was drawn from the same database as is used for sourcing other non-pension elements of pay comparison for the Armed Forces.

5.8 The data is collected in records which correspond to job weights which HayGroup has classified as appropriate for each of the various ranks considered in the comparative valuation. The data records hold detailed information regarding the pension scheme benefits for each member of the comparison group, including the type of pension scheme offered, the rate and manner by which benefits build up, the circumstances under which benefits become payable, the options available to members and details of risk benefits (death and ill-health).

- 5.9 HayGroup has advised us that the pension scheme data it holds within the database relates to the pension benefits that would be provided to a new hire (with an appropriate job weight for the purpose of the comparison) joining the comparator organisation. As discussed in paragraph 5.2 above, the benefits offered to new hires within the private sector are weighted towards defined contribution schemes, whereas the benefits provided to employees who have been with an employer for several years are weighted towards defined benefit schemes (the “two-tier” workforce).
- 5.10 Our understanding is that the comparative valuation is intended to consider the benefits which an individual member of the Armed Forces would receive in the civilian sector if they had they been in service with the comparator organisation for a similar length of service as their service in the Armed Forces. Therefore, by focusing on the benefits provided for new hires with an appropriate job weight, the comparator sample may be expected to be biased towards defined contribution schemes. This issue is considered further in Section 9, where we propose a means of re-weighting the results to counteract the impact of this feature of the data.
- 5.11 944 records covering 6 ranks (OF-1 to OF-6) were extracted for officers. A further 1,312 records covering 7 ranks (OR-2 to OR-9 but excluding OR-5) were extracted for other ranks. No data was provided for OR-1 and for the purposes of the valuation the level of comparator benefits for OR-1 is assumed to be the same as for OR-2. The extraction of data went smoothly and the quality of data was good (all records were complete). In our view, the sample size is sufficient for the purpose of the comparative valuation.
- 5.12 For officers, the comparator data used for the 2006 comparative valuation was drawn from the same database as the 2000 data. However, the actual sample of comparator pension schemes is different to that used in the 2000 valuation because the data is collected based on job weights and will not necessarily relate to the same companies each time. This could be an additional source of variation when comparing the comparator benefits.
- 5.13 More significantly, a different database held by a separate provider was used for the 2000 comparative valuation for other ranks. The change in the database for comparator pension schemes is consistent with a change in the database used for the comparison of other non-pension elements of remuneration.

5.14 Table 3 below sets out key statistics in relation to the comparator data used for this valuation compared to the data in 2000. Appendix B of the technical appendices to this report sets out further details of the benefits provided by comparator pension schemes for both the 2006 and 2000 valuations.

**Table 3**

	<b>Officers</b>		<b>Other ranks</b>	
	<b>2000</b>	<b>2006</b>	<b>2000</b>	<b>2006</b>
Member contributions to defined benefit schemes	3.0	3.7	4.7	3.8
Average accrual rate for defined benefit schemes	58ths	58ths	61ths	58ths
Proportion of defined contribution schemes	11%	53%	22%	54%
Average maximum employer contribution rate - DC schemes	12.2%	8.0%	6.8%	7.4%

5.15 In relation to officers, the changes are consistent with changes observed in occupational pension schemes more generally. In particular, there has been an increase in average member contribution rates and a significant increase in the proportion of defined contribution schemes, noting again that the database relates to new hire benefits.

5.16 In relation to other ranks there has also been an increase in the proportion of defined contribution schemes (although the change is less than in respect of officers). However, other changes in the comparator data differ from expectations in that the average rate at which benefits build up has increased and the average member contribution rate has decreased. The level of risk benefits (and, in particular, incapacity benefits) provided by the comparator schemes for other ranks are also significantly higher than was the case for the 2000 comparators.

5.17 We believe that the change in database is the reason for these unexpected changes.

5.18 Consistency in the choice of database for comparing pension benefits and other elements of remuneration is desirable as differences in pension benefits between comparator groups may be reflected in differences in other items of pay. Therefore, despite the unexpected changes, we believe that it is appropriate to reflect the benefits in the HayGroup database for other ranks for the current comparative valuation.

5.19 Table 4 below shows the difference in the value of the comparator pension scheme benefits in the 2000 comparative valuation compared to the current valuation based on the 2000 assumptions and weighted based on the defined benefit and defined contribution split in the data itself (ie before any re-weighting of the results):

**Table 4**

<b>Officers</b>			<b>Other Ranks</b>		
<b>Rank</b>	<b>Comparator benefits in 2000</b>	<b>Comparator benefits in 2006</b>	<b>Rank</b>	<b>Comparator benefits in 2000</b>	<b>Comparator benefits in 2006</b>
	<b>%</b>	<b>%</b>		<b>%</b>	<b>%</b>
OF-1	14.5	10.8	OR1-3	7.6	10.2
OF-2	15.7	11.8	OR-4	8.9	11.6
OF-3	17.2	13.0	OR-6	10.7	12.1
OF-4	19.0	14.2	OR-7	10.8	12.5
OF-5	20.8	15.4	OR-8	10.8	12.5
OF-6	22.2	16.0	OR-9	11.7	13.4
<b>Overall</b>	<b>17.2</b>	<b>12.9</b>		<b>9.1</b>	<b>11.3</b>

5.20 Overall, the changes in the comparator pension scheme benefits have resulted in a reduction in the value placed on the comparator pension schemes of 4.3% of pay in respect of officers and an increase of 2.2% of pay in respect of other ranks. The changes are fairly consistent across the specific ranks.

# 6 Methodology and assumptions

## Methodology

- 6.1 In our 2005 report “Occupational Pensions Research”, we reviewed the methodology adopted for the 2000 comparative valuation and concluded that the methodology on the whole continued to be appropriate. This methodology has been chosen to:
- Look at only the employer financed part of the benefits.
  - Look at the cost to the employer of providing the actual benefits rather than focusing on the value to the employee.
  - Consider only the level of the benefits provided and not consider the chance of non-payment of those benefits (for example, as a result of the insolvency of the employer in a private sector scheme).
- 6.2 The AFPS benefits and defined benefit comparator scheme benefits are valued using an approach known as the "projected unit" method which expresses the cost of benefits accruing over the next year of service, allowing for future salary increases up to the expected date of exit, as a percentage of salary. The value of risk benefits (that is death and incapacity benefits not directly linked to accrued service) is added to the value of the accruing benefits. In our opinion the projected unit method continues to be appropriate for the 2006 comparative valuation because:
- Looking at benefits building up in the coming year is consistent with the treatment of other items of remuneration used in the pay comparison.
  - This method is suited to the comparison of defined contribution and defined benefit arrangements.
- 6.3 Other key features of the methodology are set out below.
- The AFPS75 and AFPS05 benefits are valued separately.
  - The AFPS benefits are valued individually for each age and rank.
  - A certain percentage of the AFPS75 pension payable from the immediate pension date and a certain percentage of the Early Departure Payments Scheme (EDPS) are valued in the comparative valuation with the remainder being considered as compensation for a short career. This issue is discussed further in Section 7 of this report.
  - The defined benefit comparator pension scheme benefits are valued using the same actuarial assumptions as for the AFPS benefits but adjusted to reflect the appropriate retirement ages in the comparator schemes. A deduction is made for the level of contributions payable by members.
  - Different approaches are adopted for the valuation of defined contribution schemes and the value of State Second Pension benefits from those adopted in 2000. These are discussed in Appendices D and E of the technical appendices to this report.

For defined contribution (money purchase) arrangements, the value is taken as the maximum employer's contribution rate for the appropriate age and service together with an additional percentage of salary to cover any additional risk benefits as in 2000. A downwards adjustment has, however, been made this time to reflect the terms on which an annuity could be purchased in the open-market.

- The value of the comparator scheme benefits is adjusted to take account of relative pay levels by multiplying by pensionable pay for the comparator record and divided by average pensionable pay for the rank. (See Appendix F in the technical appendices to this report for an explanation of the need for this adjustment.)
- The difference between the value of the AFPS benefits and comparator scheme benefits for each record is then calculated based on the average age for the rank the record relates to. (See Appendix G in the technical appendices to this report for an explanation of how the difference is calculated).
- The individual differences are weighted as discussed in Section 9 of this report.

### **Financial Assumptions**

- 6.4 We have retained the approach adopted in the 2000 comparative valuation whereby the financial assumptions used should:
- Place a best estimate value on the benefits (ie without specific margins for prudence as may be adopted for funding purposes)
  - Be long term assumptions, rather than being dependent on market conditions when the calculations are carried out.
- 6.5 A summary of the financial assumptions adopted for the 2006 comparative valuation is set out in Appendix H in the technical appendices to this report. The main change impacting the values placed on both the Armed Forces and comparator pension benefits is the decrease in the assumed real rate of investment return (that is the return relative to the assumed rate of price inflation) from 4% pa to 3.25% pa. The reduction in the assumed real rate of return reflects both the fall in bond yields since the 2000 valuation and the lower expectations for future equity returns.
- 6.6 The impact of the decrease in the real discount rate is to increase the value of the Armed Forces' pension benefits (both the AFPS75 and AFPS05) and to increase the value of the defined benefit comparator schemes. There is minimal impact on the value placed on the defined contribution comparator schemes. A change in the discount rate has a greater impact on average on the defined benefit comparator schemes than on the Armed Forces Schemes. This is because the average term of the benefits is longer for the latter as the benefits are generally paid from a later age. Also the benefits are generally net of member contributions which are unaffected by the assumption change. The overall impact of a change in the discount rate on the relative

value of Armed Forces benefits to comparator scheme benefits depends on the proportion of defined contribution schemes included in the valuation.

6.7 The impact of the decrease in the real discount rate by 0.75% pa is shown in Table 5 below.

**Table 5**

Increase in value placed on benefits	AFPS75 %	AFPS05 %	Comparator schemes (as database)	Comparator schemes (reweighted as described in Section 9)
Officers	3.6	3.7	2.5	4.5
Other Ranks	3.2	3.6	2.3	4.1

6.8 Based on the defined benefit/defined contribution split in the database, a 0.1% reduction in the real discount rate **increases** the relative value of Armed Forces benefits to comparator scheme benefits purposes by around 0.1%. Based on the defined benefit/defined contribution split after re-weighting (see Section 9 of this report), a 0.1% reduction in the real discount rate **decreases** the relative value by around 0.1%.

### Demographic assumptions

6.9 The demographic assumptions adopted for the 2006 comparator valuation have been changed from those adopted for the 2000 valuation to reflect our analysis of the actual experience of members of the AFPS since 2000 with regard to rate of turnover and pay progression based on data provided by the Ministry of Defence. The changes made are as follows:

- Retirement rates have been reduced for officers and generally increased for other ranks, reflecting the experience since 2000.
- The withdrawal rates for officers and other ranks have been brought into line, reflecting the experience shown by the data. Withdrawal rates for officers have been increased while for other ranks withdrawal rates have been reduced.
- The salary scale and incapacity rates used in the 2000 comparative valuation have not been changed.

Further details of the assumptions adopted are set out in Appendix I of the technical appendices to this report.

6.10 We have also analysed the mortality experience of the pensioners and concluded that the assumptions adopted in 2000 continue reasonably to reflect that experience. However we have made an amendment to the mortality tables for both officers and

other ranks to reflect the rate of improvement underlying the mortality tables adopted. We have also reduced the death-in-service (non-attributable) mortality rates.

- 6.11 Table 6 below shows the impact of these changes in the demographic assumptions on the value placed on the AFPS benefits and on the comparator pension schemes (the impact on the comparator schemes is based on the comparator data provided (before re-weighting)).

**Table 6**

Increase in value place on benefits	Officers			Other ranks		
	AFPS75 %	AFPS05 %	Comparator schemes %	AFPS75 %	AFPS05 %	Comparator schemes %
Change in mortality tables	0.3	0.2	0.2	0.3	0.2	0.2
Change in withdrawal assumption	(1.5)	(0.8)	(0.2)	1.7	1.2	0.3
Change in retirement assumption	0.0	0.5	n/a	0.0	0.0	n/a
<b>Overall impact of changes to demographic assumptions</b>	<b>(1.2)</b>	<b>(0.1)</b>	<b>0.0</b>	<b>2.0</b>	<b>1.4</b>	<b>0.5</b>

### Member choice

- 6.12 A particular issue arises in valuing comparator pension schemes where members are offered a choice regarding the benefits they receive. It is increasingly common for higher benefit accrual rates or employer contributions to apply for members who pay higher contributions, particularly for defined contribution schemes. Similar considerations apply in relation to individuals in the comparator data who may have opted out completely from the employer's pension arrangements.
- 6.13 For the 2006 comparative valuation, we have maintained the approach used for the 2000 comparative valuation of valuing the benefits arising from paying the maximum contributions members can make. We believe that this approach is justifiable, particularly as it avoids penalising members of the Armed Forces through the comparative valuation for situations where individuals in the civilian sector have made less than optimal decisions.
- 6.14 In order to illustrate the sensitivity of the results to this methodology, if we had instead assumed that members make the minimum contribution possible under the comparator schemes, then the value placed on comparator scheme benefits would be just over 0.5% of comparator salary lower, based on the defined benefit/defined contribution

split in the database. The impact would be lower after the re-weighting described in Section 9 of this report.

### **Eligibility**

- 6.15 The comparator scheme data assumes that all individuals are eligible to receive pension benefits. In practice, we would expect a proportion of individuals in the civilian sector not to be eligible for pension scheme benefits. However, in order to be consistent with other elements of the pay comparison exercise it seems appropriate to assume that all comparator individuals are eligible for benefits as shown by the data provided. The expectation is that those not eligible for pension benefits might receive compensation in another (non-surveyed) element of their remuneration package and therefore if an adjustment was made for ineligibility this might distort the results.
- 6.16 For the 2000 comparative valuation, it was not clear from the database for other ranks how many comparators were eligible for benefits. It was assumed that 4% of the comparator individuals for other ranks were not eligible for pension benefits (it was assumed that 100% of officers were eligible). Adopting a similar approach in 2006 would reduce the value placed on comparator scheme benefits for other ranks by around 0.5% of salary.

# 7 Treatment of the Immediate Pension and Early Departure Payments Scheme

- 7.1 Members of the AFPS75 and AFPS05 are eligible to receive an immediate income before normal retirement age provided they meet specific criteria based on age and service. The nature of these incomes are very different and represent, perhaps, the most significant change following the introduction of the AFPS05 for recruits after 5 April 2005.
- 7.2 A detailed summary of the provisions for members of the AFPS75 and AFPS05 is provided in Appendix A of the technical appendices to this report.

## Treatment of the Immediate Pension (AFPS75)

- 7.3 The results of the 2000 comparative valuation allowed for 50% of the retirement benefits payable to members before the then deferred pension vesting age of 60. The balance was considered as compensation for a short career. The proportion allowed for was based upon the results of a re-employment survey carried out specifically to investigate the proportion of members obtaining civilian employment after leaving Service and the level of earnings in that employment relative to that at leaving Service.
- 7.4 For consistency with the approach adopted at previous comparative valuations, which were based upon the results of such a survey, we propose to retain the assumption that 50% is an appropriate proportion for members of the AFPS75.
- 7.5 The effect on the pension adjustment of changing the percentage of AFPS75 pension payable before the new deferred pension vesting age of 65 assumed to be treated as pension can be seen by the variations in the value placed on the AFPS75 shown below:

**Table 7**

<b>% IPP benefits allowed for</b>	<b>0%</b>	<b>50%</b>	<b>100%</b>
Officers	19.4%	25.6%	31.7%
Other ranks	16.0%	22.1%	28.2%

- 7.6 The above figures are based upon the 2006 method and assumptions described in Section 6 of this report. They also allow for the profile of the Armed Forces described in Section 8.

## Treatment of the Early Departure Payments Scheme (AFPS05)

- 7.7 The AFPS05 does not provide retirement benefits to members who retire before Normal Retirement Age. Instead, members who leave service after the Early Departure Point are provided with income to age 65 and an immediate lump sum payment from a separate arrangement – the Early Departure Payments Scheme (EDPS). These payments are expressed relative to the pension built up in the AFPS05.

On leaving service, the pension and lump sum benefits in the AFPS05 are preserved and brought into payment at age 65. The question therefore arises as to how the payments from the EDPS should be allowed for, if at all.

7.8 When the EDPS was established, the Ministry of Defence communicated the payments as "income replacement". In particular, they were specifically communicated as not being pension benefits. This does not, however, mean that the benefits provided by the EDPS should be ignored for the purpose of the 2006 comparability exercise. Indeed, such an approach would be inconsistent with the approach taken at previous valuations in relation to the AFPS75 whereby a proportion of the retirement benefits brought into payment before deferred pension vesting age were allowed for.

7.9 Table 8 below illustrates the value that would be placed on the benefits provided to AFPS05 members if 0%, 50% and 100% of the EDPS benefits are brought into account based upon the 2006 method, assumptions and profile.

**Table 8**

<b>% EDPS benefits allowed for</b>	<b>0%</b>	<b>50%</b>	<b>100%</b>
Officers	20.8%	25.8%	30.8%
Other ranks	15.9%	21.2%	26.4%

7.10 Over the Armed Forces' profile as a whole, and using the method and assumptions described in Section 6, the value of the AFPS75 and AFPS05 allowing for the same percentage of the benefits provided on leaving after the Immediate Pension Point/Early Departure Point but before age 65 are of a similar order of magnitude.

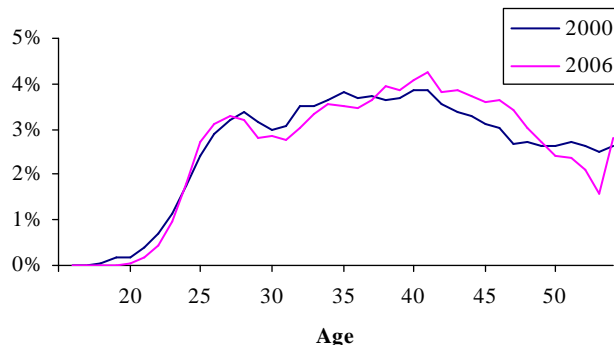
7.11 For the purpose of the 2006 comparative valuation, we have allowed for 50% of the benefits payable after the Immediate Pension Point/Early Departure Point and before age 65 in each of the arrangements. We have also provided results based on allowances of 0% and 100% in Appendices M and N of the technical appendices to this report.

# 8 Change in the Armed Forces profile

- 8.1 Another reason for the change in the pension adjustment since 2000 is the change in the profile of the Armed Forces by age and rank. The pension adjustment varies significantly by age and rank.
- 8.2 A particular feature of the design of the AFPS75 benefits, the "two-speed" rate of accrual pre and post the 16 year (officer) and 22 year (other rank) service points, creates a "saw-tooth" effect as AFPS75 benefits are significantly more valuable immediately prior to the service point than immediately after the service point. Consequently the pension adjustment in respect of AFPS75 members is higher immediately before the service point than immediately after it. This means that the overall results can be sensitive to the profile of the Armed Forces.
- 8.3 Similarly to the process in 2000, we have analysed the age/rank profile based on statistics provided for the numbers in service at 1 April 2006 and weighted this analysis by pay. Full details of this analysis are set out in Appendix K in the technical appendices to this report. Charts 7 and 8 illustrating the changes in the age profile for officers and other ranks are provided below:

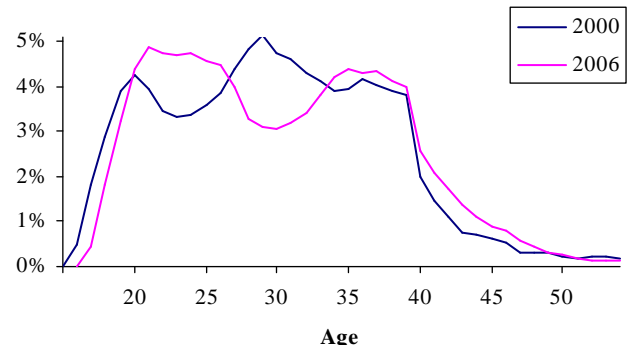
**Chart 7**

**Age distribution of active membership - officers**



**Chart 8**

**Age distribution of active membership - other ranks**



- 8.4 The impact of the changes has been to decrease the relative value of the AFPS75 pension benefits for officers by 0.2% but to increase the relative value of the AFPS75 pension for other ranks by 0.3%, based upon the method and assumptions described in Section 6 of this report.

# 9 Weighting the results

## **Defined benefit arrangements and defined contribution arrangements**

- 9.1 As described in Section 5 of this report, the pensions data within the HayGroup database represents the benefits that would be provided to a new hire (with an appropriate job weight) joining a comparator organisation.
- 9.2 Whether this poses an issue for the comparative valuation depends on how the comparators are viewed. For example, for an individual who has been with the Armed Forces for 10 years, should the comparator pension arrangement be taken as the pension scheme available to the individual if they were to now leave the Armed Forces and start a new career or should it be the scheme which is available to an individual who has been with the comparator company for 10 years?
- 9.3 From our discussions with the AFPRB and the OME, we understand that the comparative valuation is intended to be consistent with the latter approach (ie comparing the benefits which an existing employee in the civilian sector with a similar length of service would receive).
- 9.4 On this basis, as the comparator data reflects new hire arrangements, it can be expected overall to overstate the proportion of defined contribution schemes within the comparator group.
- 9.5 The average value of the defined contribution arrangements within the comparator data is significantly lower than the value placed on the defined benefit arrangements. (For officers the average value placed on comparator defined benefit schemes was 22.3% of pay compared to 7.8% of pay for defined contribution schemes. For other ranks the equivalent figures were 19.9% of pay and 7.6% of pay respectively.) Therefore, the focus of the database on new hire benefits (and thereby defined contribution benefits) could significantly bias the results.
- 9.6 As a result, we have re-weighted the comparator schemes in order to counteract this effect.
- 9.7 In doing so we have made the assumption that, for recent hires or those who will join over the period to the next comparative valuation, the HayGroup data should provide a reasonable representation of the split between defined benefit and defined contribution arrangements among the comparators. However, for those individuals with longer service, the weighting towards defined benefit arrangements should be higher, reflecting something closer to the 2000 comparator data.
- 9.8 Within the Armed Forces, rank is strongly correlated with length of service. Therefore, to re-weight the results we have adopted the following approach:

- For the most junior ranks, which cover around 25% of the overall Armed Forces population and which we expect constitute the majority of recent and new joiners, we have not re-weighted the comparator data (ie the results are based on the defined benefit and defined contribution proportions in the comparator data). For officers this covers the rank OF-1 and 50% of OF-2. For other ranks, this covers the ranks OR-1 and OR-2.
- For the rest, including the residual half of OF-2, the proportion of defined benefit and defined contribution arrangements has been re-weighted to reflect the weighting within the comparator data supplied by HayGroup for the 2000 comparative valuation (ie around 90% defined benefit schemes). The group to whom this re-weighting has been applied is intended to reflect Armed Forces members who have served for around five years or longer.

- 9.9 The re-weighting is consistent with our wider experience in relation to the nature of the shift from defined benefit to defined contribution arrangements within the civilian sector.
- 9.10 At future valuations it is expected that the re-weighting will be adjusted. In effect, we expect that the extent of the re-weighting will be scaled back as the group for whom defined contribution arrangements represent an appropriate comparator expands with time to fill the longer serving ranks.
- 9.11 As described above, the value placed on the defined benefit schemes within the comparator data is significantly higher than the value placed on the defined contribution schemes. Therefore, the re-weighting described above has a significant impact on the results of the comparative valuation.
- 9.12 The re-weighting results in an increase of 5.0% in the value placed on the comparator benefits for officers and an increase of 3.9% in the value placed on the comparator benefits for other ranks.

#### **AFPS75 and AFPS05 benefits**

- 9.13 As is described in Section 7 of this report, the overall value of the AFPS75 and AFPS05 benefits are similar if the benefits payable from the Immediate Pension Point to age 65 (AFPS75) and the benefits payable from the Early Departure Payments Scheme (EDPS) are treated in a similar manner.
- 9.14 However, there are differences in the way that the benefits accrue over time between the two schemes.
- 9.15 Therefore, consideration must also be given as to how the two schemes are combined in order to arrive at an overall pension adjustment.

- 9.16 The OME has advised us that around 7.5% of existing members chose to move from the AFPS75 to the AFPS05 when this option was offered. However, all new joiners will enter the AFPS05 and, given the rate of turnover within the Armed Forces, the proportion of members receiving benefits on the AFPS05 scale can be expected to grow over the period to the next comparative valuation. This point was well made by the Forces Pension Society in its submission to the AFPRB where it noted that turnover is around 10% of the membership each year.
- 9.17 Therefore, we propose that in arriving at a combined value for the AFPS75 and AFPS05 benefits, the approach taken to weight the two schemes should mirror that taken in relation to re-weighting the comparator data to reflect defined benefit and defined contribution arrangements.
- 9.18 In particular, we propose that for the comparative valuation the Armed Forces benefits for officers ranks OF-1 and 50% of OF-2 and other ranks OR-1 and OR-2 (again representing, in rough terms, the most junior 25% of the population) will be valued based on the AFPS05 scale. For the residual 50% of OF-2 and more senior ranks (for whom service is expected to be longer and, therefore, a low proportion of members will be on the AFPS05 scale), we propose that the Armed Forces benefits be valued based on the AFPS75 scale.
- 9.19 Again, at future valuations, we expect that the weighting will change with the proportion of AFPS05 members increasing as existing members are replaced by those who have joined the Armed Forces since the introduction of the new scheme.

# 10 Results of the 2006 valuation

- 10.1 On the methodology and assumptions set out in this report, the results of our calculations suggest that a reduction in the current pension adjustment for pay comparability purposes of 7% to around 4% of comparator pay for the next few years could be justified, if the approach of adopting a uniform adjustment for all members of the Armed Forces is continued.
- 10.2 An analysis of the impact of the changes in benefits, methodology and assumptions, and membership profile on the pension adjustment calculated in 2000 is set out in Table 9 below. It should be noted that the percentages will differ depending on the order in which the changes are viewed as the changes are not independent.

**Table 9**

	Officers %			Other Ranks %		
	AFPS	Comparator schemes	Value of AFPS above comparator schemes	AFPS	Comparator schemes	Value of AFPS above comparator schemes
<b>2000 results</b>	<b>23.9</b>	<b>17.2</b>	<b>5.2</b>	<b>17.6</b>	<b>9.1</b>	<b>7.2</b>
Changes to AFPS75 benefits (see Section 4)	(0.6)	-	(0.5)	(1.2)	-	(1.0)
Changes to comparator benefit levels before re-weighting (see Section 5)	-	(4.3)	3.5	-	2.2	(1.9)
Changes to assumptions and method (see Section 6)	2.4	1.6	0.5	5.2	1.9	2.4
Changes to the profile of the Armed Forces (see Section 8)	(0.1)	0.2	(0.2)	0.5	0.1	0.3
2006 results (AFPS75 only) before DB/DC re-weighting	25.6	14.7	8.5	22.1	13.3	7.0
<b>Combined AFPS75/05 results - also allowing for DB/DC re-weighting (see Section 9)</b>	<b>24.8</b>	<b>19.7</b>	<b>3.9</b>	<b>21.9</b>	<b>17.2</b>	<b>3.7</b>

- 10.3 Details of the results by rank are set out in Appendix L of the technical appendices to this report. Appendices M and N of the technical appendices to this report show the same results but assuming 0% and 100% of the benefits payable after the Immediate Pension Point/Early Departure Point are included in the valuation.

- 10.4 Table 9 shows that the value of the AFPS75 benefits for officers has increased from 23.9% to 25.6% of comparator pay as a result of the change in assumptions partly offset by the change in the benefit structure. The value of the AFPS05 benefits is similar.
- 10.5 The value of the AFPS75 benefits for other ranks has increased by a greater extent from 17.6% to 22.1% of comparator pay. This is mainly because the changes to the demographic assumptions as well as the financial assumptions have increased the value of the benefits. This has been partly offset by the benefit changes. The value of the AFPS05 benefits for other ranks is slightly lower.
- 10.6 The value of the comparator pension scheme benefits based on the comparator data provided has decreased for officers from 17.2% to 14.7%. This is mainly because of the changes to the benefits in the comparator sample, partly offset by the changes in assumptions. However after re-weighting, the value of the comparator benefits for officers increases to 19.7% on the 2006 methodology and assumptions.
- 10.7 The value of the comparator pension scheme benefits according to the comparator data provided has increased for other ranks from 9.1% to 13.3% as a result of changes in the benefits in the comparator sample and the change in the assumptions used to value the benefits. After re-weighting the value of the comparator benefits for other ranks increases to 17.2% on the 2006 methodology and assumptions.
- 10.8 There has been significant change in the occupational pensions environment since 2000 and the changes have impacted the pension adjustment both upwards and downwards. Overall the calculations indicate that pension adjustment has reduced to around 4% of comparator pay although it can be seen that the results are especially sensitive to the weighting of the comparator pension benefits between defined benefit and defined contribution schemes. The results are also especially sensitive to the treatment of the Immediate Pension Point/Early Departure Point. The overall relative value of the Armed Forces benefits to the comparator pension benefits ranges from around -1% to 8% depending on the treatment of this, as can be seen in Appendices M and N of the technical appendices to this report.
- 10.9 Overall, under the method and assumptions proposed, the relative value of AFPS benefits to comparator scheme benefits has reduced from 5.2% to 3.9% for officers and from 7.2% to 3.7% for other ranks, on the proposed methodology and assumptions and allowing for re-weighting. The relative values by rank range from just below 0% to around 6% for officers and from around 1½% to 4½% for other ranks as can be seen in Appendix L of the technical appendices to this report.
- 10.10 In the next Section we comment on how the pension adjustment might be expected to change in future.

# 11 How the results might change in future

## **Civilian sector benefits**

- 11.1 Recent experience suggests that the trends identified within the private sector in Section 5 of this report are continuing, with further closures of defined benefit schemes and increases in member contribution requirements. In addition, a small but growing group of private sector employers have taken the step to cease or significantly alter defined benefit accrual for existing members. Therefore, our expectation is that over the longer term the level of comparator benefits will continue to decrease, although this may be offset by an upwards trend in DC contribution rates.
- 11.2 Other factors which might have an impact on future benefit levels within the civilian sector include:
- The Government's White Paper on pension provision, which includes a proposal for the introduction of a new system of personal savings accounts – these accounts will widen eligibility, but it is still too early to tell what impact, if any, they may have on the benefits provided through existing schemes.
  - The introduction of new age discrimination legislation which became effective on 1 December 2006 which covers discrimination at all points of recruitment, promotion, employment and redundancy. Again, there is uncertainty in the pensions industry on what the impact of this legislation will be and in many cases legal advice is still being sought on how benefits might need to change.

## **Re-weighting the results**

- 11.3 As described in Section 9 of this report, for the current valuation the results for around 75% of members have been re-weighted to reflect the proportion of defined benefit schemes in the 2000 comparator data supplied by HayGroup.
- 11.4 As existing members leave the Armed Forces and are replaced by new joiners, the approach taken to the re-weighting will need to be adjusted to reflect a growing weighting towards defined contribution schemes.
- 11.5 Over time, this process can be expected to lead to a decrease in the value placed on comparator schemes.

## **Overall trends**

- 11.6 As described above, it is expected that the value placed on comparator schemes will decrease over time as a result of changes in the weighting (towards defined contribution benefits) and as more employers initiate changes to benefits for existing members in the private sector.

- 11.7 We therefore expect that for future comparative valuations the pension adjustment will tend to increase.
- 11.8 However, other factors which might impact on the comparative valuation (for example changes in assumptions and changes in the profile of the Armed Forces) are more difficult to predict and they could serve to reinforce or offset the changes identified above.

# 12 Conclusions

- 12.1 Based on our calculations, the relative value of the Armed Forces and comparator benefits for both officers and other ranks has reduced since the 2000 comparative valuation. The results of the 2006 comparative valuation would support a pension adjustment of 4% of comparator pay, if a single pension adjustment were to continue to be used. This compares to an adjustment of 6% supported by the 2000 valuation and a current pension adjustment of 7% of comparator pay for pension purposes.
- 12.2 The relative value of the Armed Forces to comparator benefits for officers has reduced from 5% to 4% and the pension adjustment for other ranks has reduced from 7% to 4%.
- 12.3 There has been a significant amount of change in the occupational pensions environment since 2000, some of which has increased the pension adjustment and some of which has reduced it. The results are sensitive to the assumptions made, especially regarding the weighting of the comparator pension schemes and the treatment of the Immediate Pension and the Early Departure Payments Scheme.
- 12.4 In the past a single pension adjustment has been used for all members of the AFPS. The results in Appendix L in the technical appendices to this report show how the adjustment might vary by rank and consideration could be given to applying different adjustments to different ranks. This could be argued to be more equitable although, on an individual basis, rank is just one of many factors affecting the value of benefits – one of the main factors, which cannot be determined in advance, being whether the individual reaches the Immediate Pension Point or Early Departure Point or leaves before then.
- 12.5 We have given some consideration as to how the pension adjustment might be expected to change over time. It is expected that the relative value placed on comparator benefits will reduce over time as a result of changes in the weighting (towards defined contribution schemes) and as more changes to civilian benefits are introduced for both new hires and existing members. This may result in an increase in the pension adjustment at future valuations.

*Watson Wyatt Limited*

**Watson Wyatt Limited**

**15 February 2007**

**Watson House  
London Road  
Reigate  
Surrey  
RH2 9PQ**

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### **Limitations and Reliances**

There are three important limitations to the work that underlies this report. The first is that we have provided this report for the Office of Manpower Economics and the Armed Forces' Pay Review Body and others should not rely on it or take action based on it without seeking their own independent advice. The second is that we have relied on HayGroup to provide accurate information about the comparator pension schemes and the Ministry of Defence to provide accurate information about the turnover and mortality experience of the Armed Forces and the current profile of the Armed Forces. The third is that the assumptions made about future economic conditions are just that - assumptions and not predictions or guarantees.

### **Third parties**

We have prepared this report under the terms of the Framework Agreement with the Office of Manpower Economics dated 2 September 2004. We have prepared it to provide guidance to the Armed Forces' Pay Review Body on the difference between the value of the benefits provided by the Armed Forces Pension Schemes and those provided by comparator pension schemes in order to assist them in determining the pension adjustment to apply for pay comparability purposes. As such, it should not be used or relied upon by any other person for any other purpose. Watson Wyatt Limited does not accept any responsibility for any consequences arising from any third party relying on this report.

### **Data supplied**

HayGroup bears the responsibility for the accuracy of the comparator pension scheme data provided. The Ministry of Defence bears the responsibility for the accuracy of the data provided relating to the membership of the Armed Forces and the experience of members of the Armed Forces and pensioners retired from the Armed Forces in relation to turnover and mortality.

### **Investment assumptions**

The investment and economic assumptions have been derived by Watson Wyatt Limited through a blend of economic theory, analysis and the view of investment managers. They inevitably contain an element of subjective judgement. There is no guarantee that the assumptions made will be borne out in practice.