2005

MILITARY SUPERANNUATION AND BENEFITS SCHEME

AND

DEFENCE FORCE RETIREMENT AND DEATH BENEFITS SCHEME

(MSBS AND DFRDB)

A report on long term costs
carried out by the
Australian Government Actuary
using data to 30 June 2005

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SUMMARY

This report sets out estimates as at 30 June 2005 of the long term costs of superannuation benefits payable in respect of the members of the major superannuation schemes covering the vast majority of Australian Defence Force (ADF) personnel. The previous report was prepared using data as at 30 June 2002.

The schemes covered in this report are:

- the Military Superannuation and Benefits Scheme (MSBS) which commenced on 1 October 1991; and

- the Defence Force Retirement and Death Benefits Scheme (DFRDB) which has been closed to new members since the commencement of the MSBS.

Changes to military superannuation since the previous report

There have been two significant changes to the superannuation regime applying to ADF personnel over the period under review. The first was to allow the splitting of superannuation entitlements following the changes to the Family Law Act. The other significant change during the period was the inclusion of certain Qualifications and Skills allowances into superannuation salary. The first of these measures had a negligible impact on scheme costs and the second resulted in a minor increase in costs.

Scheme membership

Contributory membership has been stable over the past six years at around 51,500, with declines in DFRDB serving members being offset by increased numbers of MSBS serving members. The number of pensioner members in both schemes has continued to increase with almost 62,000 pensioners in total being valued for the current review. The number of MSBS members with a preserved benefit increased by 13,000 over the three years from 2002 to 2005, to over 57,000.

Changes in assumptions since the previous report

The assumptions adopted and changes since the previous report are discussed in Chapter 4. For the most part, each of the changes in the experience assumptions since the previous report is of a relatively minor nature but cumulatively they result in a noticeable increase in the dollar value of reported costs. The assumed growth in GDP is higher than for the previous report.

Notional employer contribution rates

The notional employer contribution rate is the contribution rate that would be required to fund the benefits accruing to serving members over the next three years on the basis that superannuation benefits are accrued uniformly over a member's period of service. The following table shows the contribution rates for each scheme as calculated for this report and the previous report as at 30 June 2002.

Notional employer contribution rate as a percentage of superannuation salary

Report as at	MSBS	DFRDB	Combined
30 June 2002	23.2%	33.9%	25.3%
30 June 2005	24.7%	33.5%	26.0%

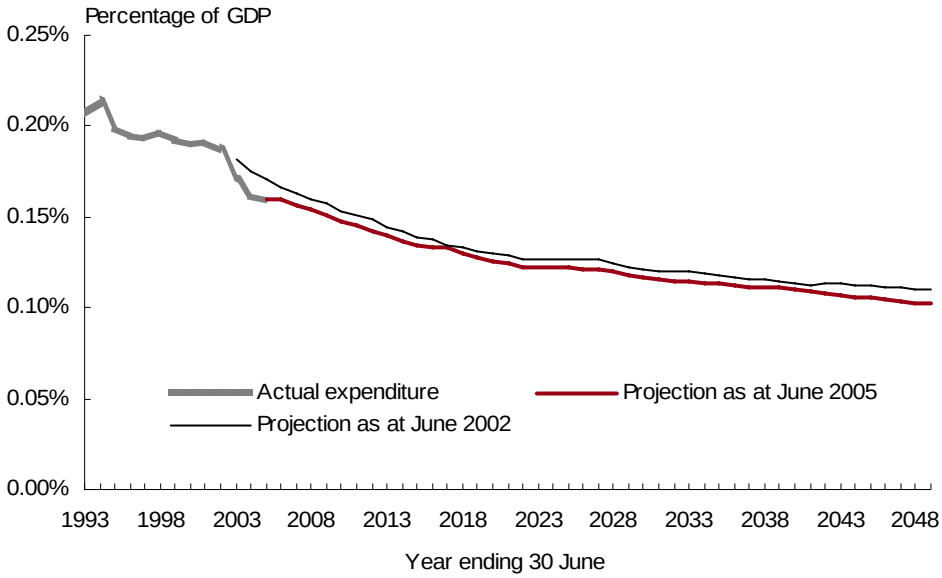
Notes:

1. The MSBS rates exclude the cost of the retention benefit.
2. The 2002 and 2005 combined rates are weighted average rates based on salaries of the members of the two schemes projected over the three years following the review date.
3. Attention is drawn to the changes in assumptions between 2002 and 2005. Details are given in Chapter 4.
4. These rates include the 3 per cent productivity benefit.

Projection of employer costs

The cashflows that will be required under the current method of funding benefits have been projected for the next 40 years and expressed as a percentage of Gross Domestic Product (GDP) so that the relativities of annual Government superannuation cash outlays can be matched against a relevant base. The following chart shows actual costs since 1993 and projected costs for the next 40 years, together with the costs that were projected in the 2002 Report.

Actual and projected employer costs as a percentage of GDP



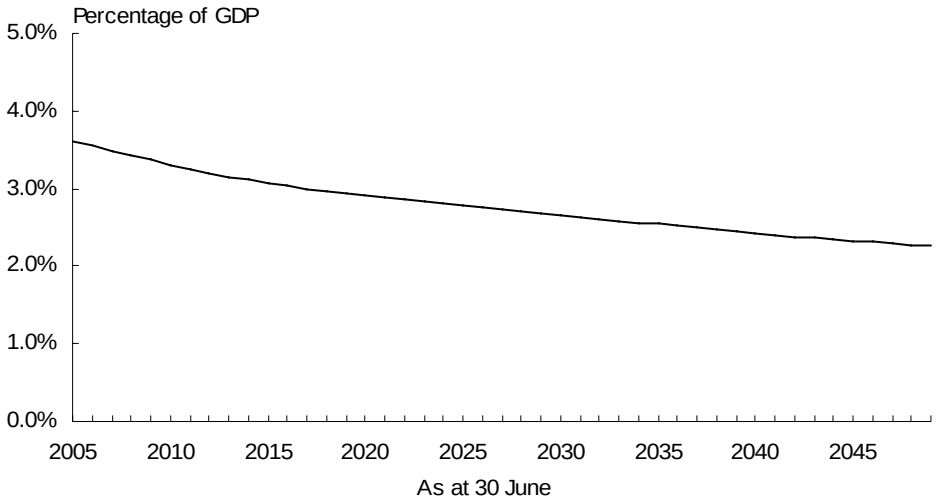
Annual costs represent approximately 0.16 per cent of GDP at present, falling to around 0.11 per cent of GDP in the long term. The current projections are slightly lower than the projections in the 2002 Report due to higher projected GDP.

Present value of unfunded liabilities

The direct unfunded liability in respect of benefits that have already accrued for current employees, former employees and pensioners has been calculated to be $32.1 billion as at 30 June 2005 of which $23.3 billion relates to the DFRDB and $8.8 billion to the MSBS. This is 3.6 per cent of GDP. This compares with the figures appearing in the last report of $27.1 billion or 3.8 per cent of GDP as at 30 June 2002.

The following graph illustrates the projected fall off in the total unfunded liabilities as a percentage of GDP. The trend is clearly favourable with liabilities at the end of the period being around 70 per cent of their current level.

Projected unfunded liabilities as a percentage of GDP



AASB 119

From the 2005/06 financial year, the Department of Defence will be required to comply with Australian Accounting Standard AASB 119 — Employee Benefits in reporting on superannuation obligations in its financial statements. The valuation methodology and assumptions required under AASB 119 differ in some respects from the methodology and assumptions used in this report. In particular, the AASB 119 requirement to use a Government bond rate at the reporting date as the interest rate is likely to result in changes in economic assumptions from year to year. All else being equal, movements in interest rates will lead to volatility in reported liabilities under AASB 119.

The current report is focussed on the financial implications of the military superannuation arrangements over the long term and, in my view, is a more appropriate document for this purpose than the Department of Defence Financial Statements.

Future Fund

The Australian Government announced during the 2004 federal election that it would establish a Future Fund to meet unfunded superannuation liabilities, contribute to national savings and increase net worth. It is intended that the unfunded liabilities of the military superannuation schemes would eventually be covered by the assets of the Future Fund. However, since the assets of the Future Fund are not held by the schemes, the unfunded liabilities projected in this report have not been reduced to take account of the assets which may be held by the Future Fund. Similarly, the projected outlays have not been reduced to take account of any drawdowns from the Future Fund.

CHAPTER 1: INTRODUCTION

1.1 This report has been prepared within the Office of the Australian Government Actuary for the Department of Defence. It sets out estimates of the net long term superannuation costs of the Military Superannuation and Benefits Scheme (MSBS) and the Defence Force Retirement and Death Benefits Scheme (DFRDB) that will be charged to the Consolidated Revenue Fund (CRF). The estimates are based on an examination of scheme data supplied by ComSuper (the schemes' administrator) relating to experience during the period 1 July 2002 to 30 June 2005.

1.2 The Military Superannuation and Benefits Scheme was established on 1 October 1991 to provide benefits for persons joining the ADF after that date. Serving ADF personnel at that time were given the option of transferring to the MSBS or retaining their membership in the DFRDB.

1.3 This report analyses the experience of the MSBS and DFRDB since 1 July 2002 and assesses the long term costs of the schemes in the light of this experience. Estimates of the long term costs of military superannuation have been provided by the Australian Government Actuary in a series of reports since the commencement of the DFRDB on 1 October 1972. The most recent estimate of the long term costs of the DFRDB and MSBS was carried out using data as at 30 June 2002 and was presented in my report dated June 2003.

1.4 This report has been completed in accordance with the principles recommended in the separate actuarial paper 'The Financing and Costing of Government Superannuation Schemes'. That paper provides a full explanation of the methods used and the reasons for their adoption.

1.5 Three measures of long term costs are provided:

- Notional employer contribution rate

  This is the employer contribution rate that would be required to fund the benefits accruing over the next three years, on the basis that superannuation benefits are accrued uniformly over a member's period of service. It represents the employment cost that arises from the superannuation schemes, and has been expressed as a percentage of salaries.

- Projection of actual employer costs

  This is a projection of the actual cash outlays payable annually by the Commonwealth in respect of superannuation benefits for ADF personnel. The cost, which is explained in paragraph 2.9, has been projected over

the next 40 years and expressed as a percentage of Gross Domestic Product.

- Net present value of unfunded liabilities

  This indicates the total level of the accrued Commonwealth liability for superannuation benefits in respect of service up to 30 June 2005 for which no assets are held by the schemes.

1.6 Although a formal actuarial review of the schemes is carried out every three years, approximate updated estimates of the net present value of the unfunded liabilities have been provided on an annual basis. These estimates have been used in the Department of Defence Financial Statements. The updated estimates are based on the projections generated in the Long Term Cost Report adjusted to reflect more recent MSBS and DFRDB scheme experience.

1.7 The report has had regard to the Institute of Actuaries of Australia Professional Standard 400 (Investigations of Defined Benefit Superannuation Funds) and complies with the Standard insofar as it deals with unfunded superannuation schemes. Professional Standard 400 is designed to primarily apply in the context of funded private sector defined benefit superannuation funds. The schemes under review in this report operate on an unfunded or substantially unfunded basis with an implicit Government guarantee. Given the different context, there are substantial sections of Professional Standard 400 that are not relevant to this report.

CHAPTER 2: THE MSBS AND THE DFRDB

The MSBS

2.1 The Military Superannuation and Benefits Scheme was introduced on 1 October 1991. The documents setting out the provisions of the MSBS are the *Military Superannuation and Benefits Act 1991* and the Trust Deed and Rules of the Scheme. Membership is compulsory for those joining the ADF as permanent employees.

The DFRDB (and the DFRB)

2.2 The Defence Force Retirement and Death Benefits Scheme came into existence on 1 October 1972 when it replaced the Defence Forces Retirement Benefits Scheme (DFRB). All contributory members of the DFRB transferred to the DFRDB at that time. While DFRB pensioners continue to receive pensions payable under the DFRB legislation, their costs are shown under the DFRDB. The DFRDB was itself closed to new entrants from 1 October 1991. The documents setting out the provisions of the DFRDB are the *Defence Force Retirement and Death Benefits Act 1973* as amended, together with the associated Regulations and the Defence Force (Superannuation) (Productivity Benefit) Determination made under the *Defence Act 1903*. The DFRDB covers all members of the DFRDB as at 30 September 1991, with the exception of those contributory members who subsequently transferred to the MSBS.

Benefits

2.3 Details of benefits payable under the MSBS and the DFRDB are set out in Appendices A and B respectively. They can be described briefly as follows:

MSBS A member financed benefit equal to member contributions accumulated with fund earnings plus an employer financed lump sum benefit based on a multiple of final average salary and total service. On age retirement, the employer financed lump sum may be wholly or partially converted to an indexed pension.

DFRDB An indexed pension benefit based on a multiple of final salary and total service. Part commutation of the pension to a lump sum is permitted on age retirement.

Changes to military superannuation over the review period

2.4 There have been no major changes in the benefit scale or structure of the MSBS or DFRDB between the previous report as at 30 June 2002 and this report as at 30 June 2005. There were, however, two significant changes potentially affecting superannuation entitlements over the period.

2.5 The first relates to amendments to the governing legislation and associated instruments to allow the splitting of superannuation benefits as part of a Family Law settlement. This followed changes to the Family Law Act to bring superannuation explicitly into the Family Law regime. Such splits may arise where partners divorce or separate. Where a split occurs, the member benefits are reduced and new associate benefits are provided for the former (non-member) spouse. The second significant change was the inclusion of certain Qualification and Skill allowances in superannuation salary.

2.6 Following the reduction in the maximum rates of the superannuation surcharge tax, changes were made to the methodology for calculating the cap on maximum reductions in benefits due to the superannuation surcharge. This is unlikely to affect many members and, for costing purposes, is immaterial.

Funding and payment of benefits

2.7 Member contributions and productivity superannuation contributions to the MSBS are invested by the Military Superannuation and Benefits Board of Trustees No 1 (the trustees). Contributions are accumulated with interest at the actual investment earnings rates of the MSBS Fund. That part of benefit entitlements which is not covered by the accumulated value of member and productivity superannuation contributions, is financed from the CRF on an unfunded basis. In practice, the accumulation is transferred to the CRF when a benefit commences to be paid and the entire benefit is financed from the CRF.

2.8 Member contributions to the DFRDB are paid direct to the CRF and not accumulated in a fund. All benefits from the DFRDB (and DFRB pensions) are provided from the CRF on an unfunded basis.

2.9 The estimates in Chapter 6 of this report relate to the actual employer cost payable by the Commonwealth, with the cost in each year being calculated as follows.

(i) **MSBS**
Funded productivity superannuation contributions to the MSBS Fund
plus
Unfunded portion of benefits paid from the CRF

(ii) **DFRDB**
Benefits (unfunded) paid from the CRF
less
Member contributions paid to the CRF

(iii) **DFRB**
Pensions paid from CRF

For simplicity, DFRB is treated as being part of DFRDB in this report.

Retention benefit

2.10 The *Military Superannuation and Benefits Act 1991* also provides for a retention benefit which is payable to eligible personnel who, on completion of 15 years service, undertake to complete a further five years service. The benefit is a lump sum of one times salary which is paid directly to the individual at the time he or she commits to the additional service and is taxed as assessable income in the hands of the individual. As the retention benefit is not a superannuation benefit (being payable prior to exit from service), the benefit outgo and associated employer costs have not been included in this report.

CHAPTER 3: MEMBERSHIP, DATA AND ASSETS

Data

3.1 This report has been based on data supplied by ComSuper who carry out the administration of the schemes. ComSuper put a considerable effort into supplying data in a form suitable for actuarial analysis.

3.2 Actuarial investigations of this nature include a close reconciliation of the data with that provided at previous investigations and analysis of discrepancies to check that the data is sufficiently accurate for the purpose of the report. Checks are also made against other sources of information, such as annual reports.

3.3 Details of the main checks are included below. These checks indicate that the data is substantially complete and hence I am satisfied that the data is sufficiently accurate for the purposes of this report.

3.4 Checks were also done on the internal consistency of individual records and, where necessary, queries were followed up with ComSuper. Where it could be established that the information on the data supplied was inaccurate, records were amended to enable a more accurate valuation.

Membership

3.5 A summary of the contributory membership valued is set out below.

Contributors (as at 30 June 2005)

	MSBS		DFRDB	
	Number	**Salaries ($m)**	**Number**	**Salaries ($m)**
Male Officers	7,319	536	1,997	179
Female Officers	1,368	96	73	6
Male Other Ranks	31,226	1,529	4,799	298
Female Other Ranks	3,092	159	203	12
Cadets	1,486	39	-	-
Total	**44,491**	**2,359**	**7,072**	**495**

3.6 The number of MSBS contributors valued is 44,491. The Defence payroll for Pay 27 of 2004/05 (the last pay for 2004/05) had 44,330 contributors plus 97 non-contributory serving members and 203 non-effective members. Non-effective members are individuals who are on strength but not receiving pay on a particular payday because, for example, they are on leave without pay. Total superannuation salaries valued were also checked against the Defence payroll for Pay 27. These checks did not reveal any significant cause for concern.

3.7 The MSBS Annual Report has 45,861 contributors as at 30 June 2005. Enquiries revealed that the number of contributors recorded in the MSBS Annual Report included a significant number of individuals who had ceased to be contributors in the months leading up to 30 June 2005 but whose exit benefits had not been processed as at 30 June 2005. These individuals were thus recorded as being contributors in the MSBS Annual Report whereas they have been valued as preserved members for the Long Term Cost Report. Given this, I have placed greater weight on the payroll checks and it is my view that the MSBS contributor data valued was substantially complete.

3.8 The number of DFRDB contributors valued is 7,072. The DFRDB Annual Report has 7,252 contributors as at 30 June 2005. The Defence payroll for Pay 27 of 2004/05 (the last pay for 2004/05) had 7,035 contributors plus 88 non-contributory serving members and seven non-effective members in DFRDB. Total superannuation salaries for the members valued were broadly in line with the superannuation salary payroll for Pay 27. In my opinion, the DFRDB contributor data valued was substantially complete.

3.9 A summary of the pensioners valued is set out below. There are also a number of children's pensions payable.

Pensioners (as at 30 June 2005)

	MSBS		DFRDB	
	Number	**Pensions ($m p.a.)**	**Number**	**Pensions ($m p.a.)**
Age pensioners	2,838	44	45,611	915
Invalid pensioners	2,532	47	2,810	68
Reversionary pensioners	131	2	7,658	123
Associate pensioners	8	0	106	1
Total	**5,509**	**93**	**56,185**	**1,107**

Notes:

1. The pension amounts include the July 2005 pension increase.
2. DFRDB figures include DFRB pensioners.
3 Reversionary pensions are pensions that are payable to the surviving spouse following the death of a pensioner or contributory member.
4 Associate pensioners are pensioners who receive a pension as a result of a superannuation split following a Family Law settlement in respect of a pensioner in the MSBS or DFRDB.

3.10 The equivalent figures for pensioners as at 30 June 2002 were 4,536 MSBS pensioners with total annual pension of $68 million and 54,967 DFRDB pensioners with total annual pension of $996 million.

3.11 The 2005 MSBS Annual Report has the number of pensioners as 5,564 compared to the 5,509 valued. The former includes orphans pensions whereas the latter does not. The corresponding figures for DFRDB (excluding children's pensions) are 54,185 and 54,177 respectively. Checks were done for both DFRDB and MSBS by comparing the pensions valued with the ComSuper pension payroll figures. These checks suggested that the pension data was essentially complete.

3.12 Preserved benefits from the MSBS are payable on attaining age 55, although in certain limited circumstances they may be payable earlier. There were 57,631 preserved beneficiaries valued, with total nominal preserved benefits of $2,893 million. The 2005 MSBS Annual Report has 56,530 preserved beneficiaries. The MSBS Annual Report figure does not include those exits in the months leading up to 30 June 2005 that had not been processed by 30 June 2005 as an exit. We have included these individuals as preserved beneficiaries. At 30 June 2002, there were 44,586 preserved beneficiaries with total nominal preserved benefits of $2,059 million.

3.13 There are a small number of deferred pensioners in DFRDB. These individuals are entitled to receive a deferred pension payable from the day that they would have been eligible to receive a pension on exit from the DFRDB had they continued as a serving member. This is normally 20 years after joining DFRDB. To continue to be eligible for a deferred pension, deferred pensioners must be in

public employment. At 30 June 2005, there were 60 deferred pensioners in DFRDB.

3.14 At 30 June 2005, there were 271 associate beneficiaries in MSBS with total associate benefit amounts of $26m. Associate benefit accounts in MSBS are set up as a result of superannuation splits following Family Law settlements involving non-pensioner members of MSBS and DFRDB for non-member spouses. Associate benefits are accumulation style lump sum benefits.

Assets

3.15 The assets of the MSBS are invested in a wide range of investments including the short term money market, Australian and overseas fixed interest, Australian and overseas equities and property trusts. Based on the Financial Statements as at 30 June 2005, the net assets of the MSBS amounted to $1,749,340,000.

3.16 The MSBS assets are unitised and members have a number of investment options from which to choose. The investment strategy for the MSBS assets is structured to be consistent with the investment options chosen by members.

3.17 For the MSBS, the total of the funded components from all individual records valued was compared to the MSBS Fund as recorded in the Financial Statements. This check again suggested that the data was suitable for valuation purposes.

3.18 The DFRDB is totally unfunded and thus does not hold any assets.

CHAPTER 4: ASSUMPTIONS

4.1 Estimates of superannuation costs over the future are, by necessity, based on assumptions about the future. These assumptions can be divided into two categories:

- those which are not directly related to the scheme membership (termed General Assumptions); and
- those which are based on the experience of the membership of the scheme (termed Experience Assumptions).

4.2 This Chapter sets out a broad outline of the main assumptions adopted for this report and comments on the changes made from the assumptions used in preparing the Long Term Cost Report as at 30 June 2002 (the '2002 Report').

General assumptions

Future size of the schemes

4.3 The following Table shows the contributory membership of the schemes as valued since the 1993 review.

Contributory Membership at Last Five Reviews

Valuation Year	MSBS	DFRDB	TOTAL
1993	36,933	26,595	63,528
1996	38,610	20,271	58,881
1999	37,041	14,511	51,552
2002	42,113	9,571	51,684
2005	44,491	7,072	51,563

4.4 There was a significant fall in the combined MSBS and DFRDB membership over the six years to 1999. Since that time, the combined membership has been stable. As would be expected, DFRDB membership has fallen significantly over the period. However, it is anticipated to be around another 20 years before DFRDB contributory membership is close to zero.

4.5 The long term cost projections require an assumption regarding future growth in the membership of the relevant schemes. In recent decades, Australia's population has increased. Despite this, the number of ADF personnel has declined somewhat over the same period. Recent government initiatives

anticipate a reversal of this trend with a small increase in ADF personnel numbers. The 2002 Report assumed that combined MSBS and DFRDB contributory membership would remain constant. Given the length of the projection period and uncertainty about long term movements in ADF numbers, I have continued to use the assumption that the total contributory membership of the MSBS and the DFRDB will remain constant at the level existing at the valuation date.

4.6 Since the DFRDB is closed to new members, its contributory membership will decline. To compensate for this, the MSBS contributory membership is assumed to increase at the rate required to replace the members leaving the DFRDB. The projected decline in DFRDB contributory membership is based on the exit assumptions adopted for the DFRDB, as discussed below.

Economic assumptions

4.7 The significant financial assumptions made in assessing the long term cost of the Commonwealth's military superannuation commitments are:

- the rate of future increases in those pensions and benefits which are linked to increases in the consumer price index (CPI);
- the level of future general increases in salaries (that is, increases other than those relating to promotion or length of service etc); and
- the rate of interest to be used to discount future cashflows to a present value.

4.8 As well as these financial assumptions, assumptions regarding the rate of increase in GDP are required.

4.9 The relationship between these rates is one of the most significant matters affecting the long term cost estimates. It is important to note that changes of equal magnitude in the absolute levels of each of the rates will have only a minor effect on long term cost estimates, but can have a major effect on nominal cashflows. Changes in the relationship between the rates can have quite substantial effects on the liability and long term cost estimates. Care is therefore needed when setting the economic assumptions.

4.10 For the purposes of this report, I have decided to adopt the following assumptions:

CPI Increases	2.5% per annum (base)
General Salary Increases	1.5% per annum (real)
Interest Rate	3.5% per annum (real)
GDP Increases	A series of rates starting at 2.2% (real) for 2005/06, increasing to 3.0% per annum (real) in 2006/07 and then falling to 2.0% per annum (real) in 2040/41.

4.11 The assumptions adopted in relation to the wage growth, inflation and interest rate are the same as those adopted for the 2002 Report. The financial assumptions for an investigation into long term costs must be realistic. At the same time, stability over time must be considered. Thus, since cost estimates are sensitive to even small changes in the financial assumptions, it is important not to introduce unnecessary volatility which might mask genuine effects. Inevitably, judgement is required in setting the financial assumptions. Taking all of this into account, I have decided that it is appropriate to retain the financial assumptions which were adopted in the 2002 Report for this current investigation.

4.12 The GDP growth rates are based on Commonwealth Treasury projections of nominal GDP values but adjusted for consistency with the assumption adopted for this investigation of real wages growth of 1.5 per cent per annum. Given the adjustments made, they should not be regarded as official Commonwealth Treasury projections. The rates of GDP increase assumed are set out in Appendix C. The GDP growth rates incorporate the long term effects of demographic and labour force change. The change to the GDP growth assumption has no effect on nominal dollar outlays. However, the higher GDP assumption compared with the 2002 Report has the effect of reducing estimates of projected costs and liabilities when expressed as a percentage of GDP.

Experience assumptions

4.13 Considerable work for this report was devoted to an analysis of the data for the three years 1 July 2002 to 30 June 2005. Brief comments on the analysis are set out in the following paragraphs. It should be noted that there are significant differences in the experience of the two schemes. These differences reflect the relative design features of the two schemes. For instance, in the DFRDB, there is a big increase in the value of benefits when a member qualifies for a pension (normally after 20 years service). Thus, few members leave DFRDB in the years just before qualifying for a pension and many leave shortly after qualifying for a pension. In the MSBS, there are some incentives to serve 20 years but they are less pronounced than in the DFRDB and hence the resignation experience of the MSBS is different. Assumptions are made to reflect expected experience.

Thus, assumptions may differ according to scheme, gender, and whether officer, officer cadet or other rank. Details of assumptions are given in Appendix C.

Mortality of contributors

4.14 The contributor mortality rates are lower than those used for the 2002 Report. The rates are higher than those experienced over the three years. This allows for a margin to cover the possibility of serious accidents which result in multiple deaths.

Invalidity

4.15 The invalidity experience for DFRDB officers and other ranks was broadly in line with that assumed in the 2002 Report and the 2002 assumptions were retained.

4.16 Invalidity experience for the MSBS has been difficult to interpret and predict. In the late 1990's, the ADF introduced a new individual combat readiness regime which required serving members to have a high level of fitness. The 1999 Report anticipated that the introduction of this new regime would also lead to a one off effect with 1998/99 and 1999/2000 likely to be peak years for invalidity B and C exits. As it turned out, invalidity rates for 1999/2000 were higher than those for 1998/99 and stayed at similar levels for the following few years. Consequently, invalidity B and C rates were increased significantly for the 2002 Report.

4.17 Invalidity rates experienced since 2002 have been lower than those assumed for the 2002 Report for both officers and other ranks. Invalidity rates have therefore been reduced somewhat to reflect this more recent experience. A margin has been retained in the rates to cover the possibility of serious accidents which result in multiple invalidity claims. It is likely that invalidity rates will continue to be difficult to predict.

4.18 The invalidity experience for the MSBS has been consistently worse than for the DFRDB and accordingly the MSBS assumptions include significantly higher rates of invalidity. The explanation for this feature is not known, although it may be partly attributable to differences in scheme design. For example, a DFRDB member who has already qualified for a pension may elect to take a normal exit benefit instead of an invalidity benefit so as to be able to take part of the benefit as a lump sum. Pensions payable as a result of invalidity A or B must be taken wholly in pension form.

Resignation

4.19 Resignation assumptions have been made by duration of service. The assumptions adopted were based on the experience for the three year period to 30 June 2005.

4.20 As would be expected, given the DFRDB benefit design, there are relatively few resignations before 20 years service has been completed. A large number of resignations occur at the 20 year mark when entitlement to the pension benefit is attained. Lower rates of resignation apply thereafter. The DFRDB experience for the period was noticeably different from that assumed for the 2002 Report. Total resignations were about two-thirds of what was expected. It is not clear what has led to this change and it is difficult to know whether it is a permanent change in behaviour. However, because it persisted over the whole period, we have assumed that there has been a permanent change.

4.21 The experience for MSBS for the three years to 30 June 2005 was, for the most part, consistent with the assumptions adopted for the 2002 Report. The exception was at longer service durations. As with the DFRDB, resignation rates for long serving members were noticeably lower than expected and the MSBS resignation rates were reduced at these long durations. It should be noted that there are not many MSBS members with long periods of service. As a result, the resignation experience is not as reliable at long durations of service. Relatively minor modifications were also made to the rates for shorter service members based on the experience for the three years to 30 June 2005.

Retrenchment and redundancy

4.22 No allowance has been made for the effect of retrenchments and redundancies as the decision is unpredictable and impossible to model with any confidence. Generally, the effect of retrenchments and redundancies is to advance outlays rather than increase them overall.

New entrants

4.23 The data for the three year period to 30 June 2005 confirms the pattern that the majority of ADF personnel join at young ages, normally between 18 and 22. The age distribution of new entrants adopted for this report has been broadly based on the experience over the period. There were some noticeable differences from the 2002 Report. Very few individuals (apart from some officer cadets) join before age 18. Previously, many new entrants were aged 17. This change has resulted from Australia's compliance with a new United Nations charter against child soldiers. The other noticeable change was that there are more individuals joining at later ages than before. This is likely to be connected with the high level of ADF activities over the period and the need to acquire individuals with technical expertise and skills. The assumptions adopted have taken account of this change in experience.

4.24 At the present time, approximately 1/10th of permanent ADF personnel are females and I have assumed that this will continue to be the case. There has been a small drop in the proportion of females from 2002. This has not had a noticeable impact on reported costs, which are not particularly sensitive to the gender balance.

Promotional increases in salaries

4.25 For other ranks, promotional increases appear to be related to period of service. For officers, promotional increases appear to be related to both period of service and the age at joining. Based on experience over the three years to 30 June 2005, the rates of promotional salary increases assumed for DFRDB officers and other ranks have been slightly reduced from those used for the 2002 Report.

4.26 From the additional experience available for this report, it is clear that MSBS officers have a different promotional experience from their DFRDB counterparts, particularly for service durations in the 10 to 20 year range. The most likely cause of this is differences in benefit design between the two schemes. In the DFRDB, there is a big financial incentive to stay to 20 years, irrespective of promotion prospects, in order to qualify for the DFRDB pension. In the MSBS, the financial incentives to stay to the 20-year mark are smaller. This means that MSBS officers with poor promotion prospects are more likely to leave compared to DFRDB officers, which in turn means those that stay have better promotional prospects. New promotional salary increase rates were introduced for MSBS officers for the 2002 Report and experience has been close to that expected. Accordingly, the assumptions used for the 2002 Report have been retained. A separate promotional increase pattern applies to Officer Cadets.

Mortality of pensioners

4.27 The mortality rates for age and reversionary pensioners (that is, pensioners other than invalid pensioners) adopted at this review were primarily based on the actual experience over the three year period to 30 June 2005. The experience for male age pensioners was lower than that assumed for the 2002 Report and the pensioner mortality rates were reduced accordingly. The rates for female pensioners were the same as those used for the 2002 Report. Overall, the rates adopted are less than the mortality rates for the general population as reflected in the Australian Life Tables 2000-02. The same assumptions are used for both DFRDB and MSBS.

4.28 It is very conceivable that MSBS pensioners will have lower mortality rates than DFRDB. This is because most MSBS members have a choice between pension and lump sum on retirement whereas DFRDB members do not. The ability to choose the form of benefit means that those with poorer life expectancies might be expected to opt for the lump sum and, conversely, those who consider themselves healthier are more likely to choose the pension option. It is not possible to gauge the impact of this selection effect as the number of MSBS pensioners from age retirement is insufficient to allow a proper analysis. Thus, for the time being, the same assumptions are used for both schemes.

4.29 The assumptions regarding invalid pensioner mortality were primarily based on the data for the three years to 30 June 2005. The experience was close to that assumed for the 2002 Report and only minor changes were made to the assumptions used. As would be expected, the rates of mortality are significantly higher than for the age pensioners.

4.30 Allowances for future improvements in mortality rates of age and reversionary pensioners were made in accordance with the trend in improvements shown in the series of Australian Life Tables published over the last 40 years. No allowance was made for improvement in the mortality of invalid pensioners.

Proportions married and age differences

4.31 Proportions of members and pensioners married and average age difference between husband and wife were primarily based on the data for the three year period to 30 June 2005. The proportions married for males were slightly increased compared to the proportions assumed for the 2002 Report. The proportions married for females were the same as those assumed for the 2002 Report. Married male members are assumed to be four years older than their wives on death. This is an increase of one year over the age difference assumed in the 2002 Report. Married female members are assumed to be three years younger than their husbands on death, which is the same assumption as was made for the 2002 Report.

Pension option in MSBS

4.32 Members retiring from the MSBS (other than on the grounds of invalidity) have the option to convert all or part of their employer financed lump sum to a pension. The experience for the three years to 30 June 2005 was limited. However, it did show an increased take up of pension by both other ranks and officers. Accordingly, it was assumed that 60 per cent of the employer financed lump sum will be converted to a pension for other ranks. This compares with 50 per cent assumed for the 2002 Report. For officers, it was assumed that 75 per cent of the employer financed lump sum will be converted to a pension compared to 70 per cent assumed for the 2002 Report. The trend towards increased take up of pensions has been noticed in other Government schemes where there are pension/lump sum options. This change has had a noticeable impact on the reported costs of the MSBS, as the pension is a significantly more expensive benefit to provide compared to the alternative lump sum.

Commutation option in DFRDB

4.33 Members retiring from the DFRDB (other than on the grounds of invalidity A or B) have the option to convert part of their pension to a lump sum. As the conversion factors provide for a lump sum which is greater than actuarial value of the forgone pension, it has been assumed that all retiring members take advantage of this option to the maximum extent permissible. The assumption is borne out by the experience over the three years to 30 June 2005.

Superannuation surcharge

4.34 The superannuation surcharge is a tax on notional employer superannuation contributions in respect of those with high incomes. The tax is assessed on a year-by-year basis but for unfunded schemes, such as DFRDB and MSBS, is not paid to the Australian Taxation Office (ATO) until a benefit is payable. No tax will be assessed in respect of the 2005/06 year and subsequent years. A notional account of the amount owing to the ATO in respect of an individual is kept. When the benefit becomes payable, the actual benefit paid to the individual is reduced to take account of the superannuation surcharge amount payable to the ATO by the scheme. We have assumed that the schemes' liability to pay the superannuation surcharge to the ATO will be offset by the value of the benefit reductions resulting from the payment to the ATO. No specific allowances have thus been made in this report for the effects of the superannuation surcharge. For reference, it should be noted that, according to the Annual Report for the MSBS, the total surcharge liability outstanding at 30 June 2005 was $15 million for MSBS.

Early release of preserved benefits in MSBS

4.35 Early release of preserved benefits in MSBS is permitted on the basis of disablement or hardship. No allowance has been made for early release of preserved benefits.

Splitting of superannuation under the Family Law Act

4.36 Changes to the Family Law Act allow superannuation benefits to be split as part of a Family Law agreement or order. We have made no allowance for the impact of future splits of superannuation. Generally the effect of a split is to alter the timing of benefit payments rather than the overall quantum of benefit payments.

Conflict situations (War)

4.37 A small number of ADF personnel are currently serving in various conflict situations. However, the bulk of personnel are operating on a peace-time basis. The long term costings assume that the ADF will continue to operate on an essentially peace time basis. Conflict situations are likely to result in increased death and invalidity rates and may result in a substantial number of new entrants to the ADF.

CHAPTER 5: NOTIONAL CONTRIBUTION RATES

5.1 A notional employer contribution rate has been calculated to illustrate the effective cost of the superannuation benefits being provided by the Commonwealth as a percentage of the salaries of scheme members. It represents the estimated contribution rate that would be required to fund the benefits accruing to serving members over the next three years on the basis that benefits are attributed to periods of service on a pro-rata basis. In other words, if the scheme was exactly fully funded in respect of accrued benefits at the beginning of the three years and contributions were made at calculated rate, then the scheme would be expected to be exactly fully funded at the end of the period.

5.2 The Table below shows the notional employer contribution rates for the two schemes separately and also a combined rate for both schemes. For comparison, the rates from the 2002 Report are also shown.

Notional Employer Contribution Rates as a Percentage of Superannuation Salary

	MSBS	DFRDB	Combined
2002 Report	23.2%	33.9%	25.3%
Current Report	24.7%	33.5%	26.0%

Notes:

1. The MSBS rates exclude the cost of the retention benefit.
2. The 2002 and 2005 combined rates are weighted average rates based on salaries of the members of the two schemes projected over the three years following the review date.
3. Attention is drawn to the changes in assumptions between 2002 and 2005. Details are given in Chapter 4.
4. These rates include the 3% productivity benefit.

5.3 The increase in the MSBS notional employer contribution rate is due to changes in valuation assumptions. Of particular relevance is the increase in the proportions of the employer components of benefits assumed to be taken in pension form. The pension benefit is a significantly more expensive benefit to provide compared to the alternative lump sum. This has had a significant impact on reported costs. Also contributing to the increase are the changes in the pensioner mortality assumptions and assumptions about proportions married on death.

5.4 The effects mentioned in the previous paragraph have been partially offset by the adoption of lower rates for invalidity A and invalidity B contributor exits, as well as lower rates for deaths of contributors in service.

5.5 The DFRDB is now closed to new entrants. The changes in assumptions and membership structure have resulted in a small reduction in the notional employer contribution rate.

5.6 The increase in the combined rate from 25.3 per cent of salaries in 2002 to 26.0 per cent of salaries in 2005 is due to the increase in the MSBS notional employer contribution rate. At 30 June 2005, DFRDB contributory members represented only 14 per cent of total contributory members and changes in the MSBS rate will tend to dominate the combined rate. The decrease in the numbers of the more expensive DFRDB members since 2002 and their replacement by relatively cheaper MSBS members has moderated the impact of the increase in the MSBS rate on the combined rate.

5.7 The actuarial method used for calculating the notional employer contribution rate in both this report and the previous report is known as the Projected Unit Credit (PUC) method. More details are provided on the basis of this method in *The Financing and Costing of Government Superannuation Schemes*.

CHAPTER 6: PROJECTION OF OUTLAYS

6.1 A projection of annual employer cashflows has been carried out to show the impact of the schemes on Commonwealth outlays in the long term. The Table below shows the actual historic outlays for 1991/92, 1992/93, every third year thereafter and for each of the years since 2001/02 for the DFRDB, the MSBS, and the two schemes combined. It also shows projected outlays for the next five years and then every fifth year thereafter.

Actual and Projected Commonwealth Outlays

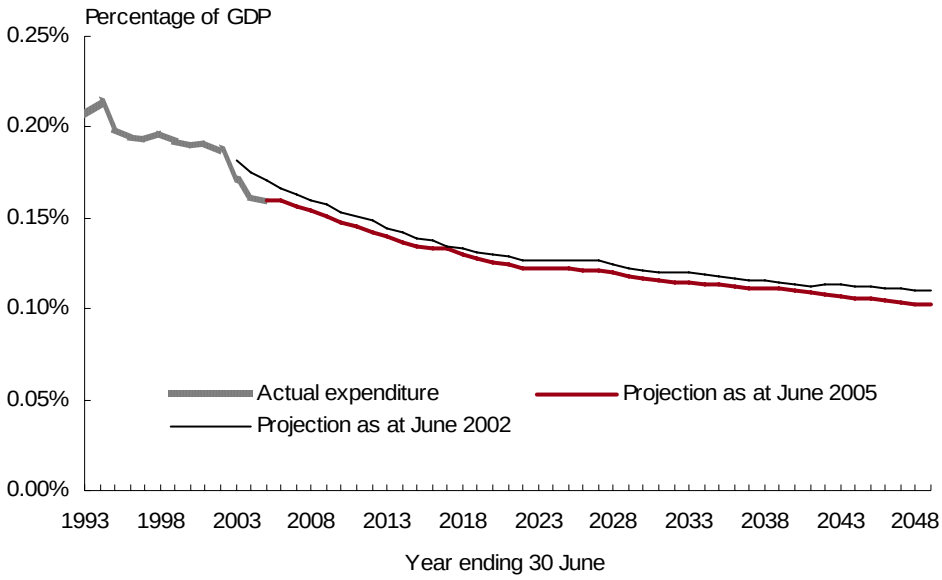
YEAR	DFRDB ($m)	MSBS ($m)	TOTAL ($m)	As a percentage of GDP
Actual				
1991-92	600	32	632	0.16
1992-93	703	139	842	0.21
1995-96	801	153	954	0.20
1998-99	986	158	1,144	0.19
2001-02	1,160	171	1,331	0.19
2002-03	1,165	175	1,340	0.17
2003-04	1,174	183	1,357	0.16
2004-05	1,222	202	1,424	0.16
Projected				
2005-06	1,268	224	1,492	0.16
2006-07	1,305	238	1,543	0.16
2007-08	1,346	255	1,601	0.15
2008-09	1,378	279	1,657	0.15
2009-10	1,412	296	1,708	0.15
2014-15	1,530	473	2,003	0.13
2019-20	1,607	766	2,373	0.13
2024-25	1,636	1,252	2,888	0.12
2029-30	1,624	1,841	3,465	0.12
2034-35	1,582	2,636	4,218	0.11
2039-40	1,480	3,677	5,157	0.11
2044-45	1,314	4,843	6,157	0.11

Notes:

1. These figures have not been adjusted to 2005 dollars.
2. The figures up to 2004-05 reflect the actual expenditure in those years.
3. The Australian Bureau of Statistics (ABS) has retrospectively increased historic GDP figures. The figures as a percentage of GDP up to 2001/02 have not been adjusted for this and are as recorded in previous Long Term Cost Reports.

6.2 The chart below shows total projected outlays as a percentage of GDP over the next 40 years. For comparison purposes, the projection of the equivalent figures taken from the 2002 Report is shown.

Actual and projected Commonwealth outlays as a percentage of GDP



6.3 Outlays as a percentage of GDP gradually decline over the projection period. There are two main reasons for this reduction:

- the number of ADF personnel is assumed to remain constant at the 30 June 2005 level, and so to fall as a percentage of the total population; and
- there is a cost saving arising from the fact that the MSBS is expected to be cheaper in the long term than the DFRDB.

6.4 Actual expenditure over the three years was around 2 per cent lower than expected in dollar terms. As has been mentioned earlier in this report, there has been a noticeable drop in the resignation rates for long serving contributors. This has resulted in some deferral of cash benefit expenditure and hence the lower than expected cash expenditure over the three years. In the same period, GDP was considerably higher than projected and this has resulted in a significant drop in outlays when expressed as a percentage of GDP.

6.5 Overall, the projected outlays in dollar terms for the next 40 years are slightly higher in dollar terms than the projections from the 2002 Report, particularly in the long term where they are around 10 per cent higher. A significant factor in

this pattern is the increased take up rate of pensions in the MSBS which has increased the reported costs of the MSBS. As most of the members of the MSBS are relatively young and not due to receive benefits for many years, the increase in cash outlays does not show up until a considerable time in the future.

6.6 The projected outlays as a percentage of GDP over the next 40 years are slightly lower than those from the 2002 projection, again due to changes in projected GDP.

6.7 Given the projected decline in costs as a percentage of GDP, the establishment of the Future Fund and the implicit Commonwealth guarantee to pay benefits, I believe that the current method of funding benefits is adequate from the perspective of the continuing financial viability of the schemes.

CHAPTER 7: UNFUNDED LIABILITIES

7.1 The unfunded liabilities are the liabilities for superannuation entitlements in respect of service already rendered to the ADF and for which no assets are held. These liabilities do not fall due until the rules of the schemes provide for benefits to be payable, which is generally when members retire, and so they are spread over many years into the future. They have been calculated as the present value of all of the liabilities accrued in respect of past service less the value of the assets held. Since the DFRDB holds no assets, the latter term refers in practice to member contributions and productivity superannuation contributions in the MSBS, together with the investment return on them.

7.2 The net present value of unfunded liabilities was calculated to be $32.1 billion as at 30 June 2005. This is 3.6 per cent of GDP. The net present value of unfunded liabilities reported as at 30 June 2002 was $27.1 billion or 3.8 per cent of GDP.

7.3 The 2002 Report projected that unfunded liabilities would be $29.7 billion as at 30 June 2005, or 3.5 per cent of GDP for 2005. Liabilities are therefore somewhat higher than was projected at the last report. The main reason for this outcome is the changes in the actuarial assumptions, particularly the higher rates of pension take up and lower pensioner mortality. A number of other factors also acted to increase the unfunded liability. These include the adverse scheme experience over the three years and the additional cost of including some Qualification and Skills allowances into superannuation salary. The higher than expected GDP has reduced the impact of these changes when the figure is expressed as a percentage of GDP.

7.4 The unfunded liability for the DFRDB is $23.3 billion and the equivalent figure for the MSBS is $8.8 billion. These figures are higher than the approximate updated estimates used for the Financial Statements for the Department of Defence as at 30 June 2005 of $22.3 billion for the DFRDB and $8.2 billion for MSBS. In both cases, the new valuation assumptions being used have played a significant role in the increase relative to the Financial Statements.

7.5 A breakdown of the unfunded liabilities between contributors, pensioners and preserved members by scheme is shown in the following table.

Estimate of Unfunded Liabilities as at 30 June 2005

Category of Members	DFRDB ($billion)	MSBS ($billion)
Contributors	4.4	4.5
Pensioners	19.0	1.9
Preserved Members	0.0	2.4
TOTAL	**23.3**	**8.8**

Note: Total may be different from the sum of the components due to rounding.

7.6 The table below shows the projected unfunded liability for the DFRDB, the MSBS and for the two schemes combined. The projections are in nominal dollars and have not been adjusted to 2005 dollars. To enable a proper comparison of the projected liabilities with the position in 2005, projections of the combined unfunded liability as a percentage of GDP are also shown.

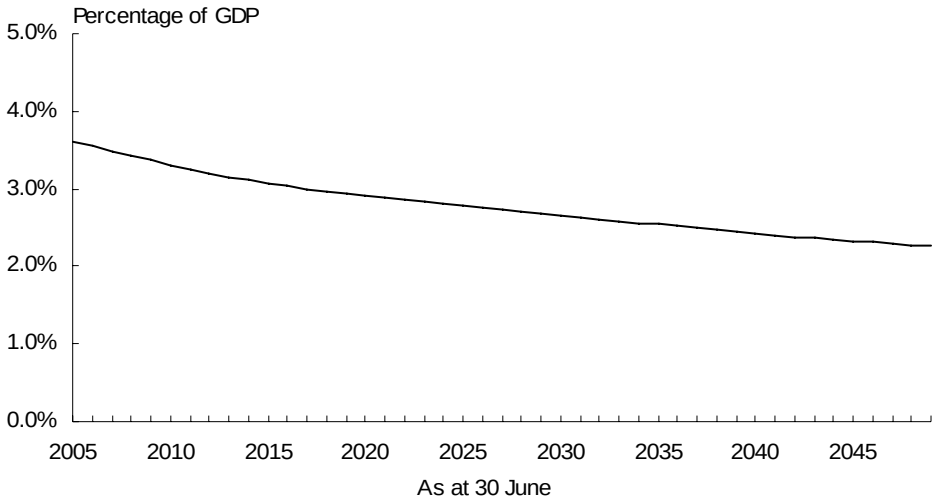
Projected Unfunded Liabilities

Year Ending 30 June	DFRDB ($billion)	MSBS ($billion)	TOTAL ($billion)	As a percentage of GDP
2005	23.3	8.8	32.1	3.6
2010	24.2	14.0	38.3	3.3
2015	24.2	21.5	45.7	3.1
2020	23.4	31.4	54.8	2.9
2025	21.9	44.0	65.8	2.8
2030	19.8	59.1	78.9	2.7
2035	17.2	77.6	94.8	2.5
2040	14.1	99.3	113.5	2.4
2045	10.9	125.1	136.0	2.3

Note: Total may be different from the sum of DFRDB and MSBS due to rounding.

7.7 The graph below shows the projected unfunded liabilities as a percentage of GDP.

Projected unfunded liabilities as a percentage of GDP



7.8 The main feature of the projection is the steady fall in unfunded liabilities relative to GDP. There are three main reasons for this:

- it is assumed that the total number of ADF personnel will stay at the same level as at 30 June 2005, that is, that the number of ADF personnel as a percentage of the population will fall;
- the MSBS is a less expensive scheme than the DFRDB; and
- the MSBS is partially funded whereas the DFRDB is wholly unfunded.

7.9 The general trend is clearly favourable with liabilities at the end of the period being around 70 per cent of their current level relative to GDP.

AASB 119

7.10 From the 2005/06 financial year, the Department of Defence will be required to comply with Australian Accounting Standard AASB 119 — Employee Benefits in reporting on superannuation obligations in its financial statements. The valuation methodology and assumptions required under AASB 119 differ in some respects from the methodology and assumptions used in this report. In particular, the requirement to use the Government bond rate at the reporting date as the interest rate is likely to result in changes in economic assumptions from year to

year. All else being equal, movements in interest rates will lead to volatility in reported liabilities under AASB 119.

7.11 The current report is focussed on the financial implications of the military superannuation arrangements over the long term. As noted earlier, it is important in a long term cost report not to introduce unnecessary volatility which might mask genuine effects. Accordingly, in my view, this is a more appropriate document for the purpose than the Department of Defence Financial Statements.

Future Fund

7.12 The Australian Government announced during the 2004 federal election that it would establish a Future Fund to meet unfunded superannuation liabilities, contribute to national savings and increase net worth. It is intended that the unfunded liabilities of the military superannuation schemes would eventually be covered by the assets of the Future Fund. However, since the assets of the Future Fund are not held by the schemes, the unfunded liabilities projected in this report have not been reduced to take account of the assets which may be held by the Future Fund. Similarly, the projected outlays have not been reduced to take account of any drawdowns from the Future Fund.

CHAPTER 8: CLAWBACK

8.1 The unfunded liability referred to in Chapter 7 needs to be seen in the context of the Commonwealth as a whole. It represents the capitalised value of the liability of the Commonwealth in respect of service already provided to the Commonwealth. However, if the Commonwealth did not discharge this liability, then it would incur increased age pension outlays and receive reduced taxation receipts. This theoretical impact on age pension outlays and tax receipts can be looked upon as an offset to the unfunded liabilities. It is referred to as clawback.

8.2 The value of clawback is the capitalised value of the additional costs that would fall elsewhere upon the Commonwealth (either by increased outlays on age pensions or by reduced tax receipts) if the unfunded liabilities were not discharged.

8.3 The estimation of clawback presents special problems. As well as a basic assumption that current taxation and social security legislation will remain in a generally unchanged format, assumptions must be made about:

- future benefit levels and thresholds; and
- the private savings and spending behaviour of ADF personnel.

8.4 Specific assumptions used in the clawback analysis are summarised in Appendix C. Note that the proposed changes to the taxation treatment of superannuation announced in the 2006-07 Budget have not been taken into account.

8.5 On the basis of the assumptions made, the clawback has been approximately estimated as $8 billion. This estimate is quite sensitive to the assumptions, and the subjective and uncertain nature of these assumptions should be noted. The estimate of clawback therefore needs to be interpreted with caution.

Peter Martin FIAA
Australian Government Actuary

8 June 2006

APPENDIX A

Summary of Membership, Contribution and Benefit Provisions of the Military Superannuation and Benefits Scheme (MSBS)

The MSBS is governed by a Trust Deed and Rules established under the Military Superannuation and Benefits Act 1991. The Act, Trust Deed and Rules set out the full membership, contribution and benefit provisions of the MSBS. The provisions of the Scheme are complex and a summary of the principal provisions of the Scheme is set out below. It should not be used to calculate benefits for individuals.

Membership

Membership is compulsory for all members of the Permanent Force and Reservists rendering continuous full time service.

Definitions

Salary	Salary is actual salary including higher duties allowance, Service Allowance, and some Qualifications and Skills allowances.
Final Average Salary	Average annual Salary received over the last three years prior to termination of service.
Accrual Rates	The accrual rate is variable and calculated on a daily basis. The rate is 18 per cent for each of years of service 0 to 7, 23 per cent for each of years 8 to 20 and 28 per cent for year 21 and each year thereafter.
Total Accrued Multiple	The sum of the accrual rates for the total period of service.

Member Contributions

Contributions rates are variable. There is a set base rate of 5 per cent of Salary with an option to contribute additional amounts of up to 5 per cent in increments of 1 per cent (maximum contributions are thus 10 per cent of Salary).

Appendix A

Scheme structure

Member component	This consists of the member contributions paid into the MSBS together with accumulated earnings on the contributions.
Employer component	This consists of a defined benefit equal to: Total Accrued Multiple x Final Average Salary
3 per cent benefit	This consists of employer contributions of 3 per cent of salary less 15 per cent employer contribution tax together with accumulated earnings. The 3 per cent benefit forms part of the employer component.

Retirement benefits (on or after age 55)

On retirement the member would be entitled to a lump sum of:

- Member component + Employer component

The member has an option to convert between 50 per cent and 100 per cent of the employer component to a pension. The terms of conversion are determined by the member's age at the date of conversion. At age 55, $12 of lump sum is converted to $1 per annum of pension.

Resignation benefit (before age 55)

On resignation, the member would be entitled to:

- an immediate lump sum of the Member component; and
- a Preserved Employer Benefit of the Employer component

The Preserved Employer Benefit is paid at age 55, or earlier in certain circumstances. The funded portion of the Preserved Employer Benefit (the 3 per cent Benefit) is accumulated with Fund Earnings between the date of exit and the date of payment. The unfunded portion of the Preserved Employer Benefit (the portion in excess of the 3 per cent Benefit) is increased in line with movements in the CPI between the date of exit and the date of payment.

When the Preserved Employer Benefit is paid the member has the same pension option as applies to retirement benefits.

Retrenchment or redundancy

The benefit is calculated in the same way as the resignation benefit. The member may elect one of two options with the employer financed part of the benefit:

- take a Preserved Employer Benefit; or
- convert all of the Preserved Employer Benefit into an immediate pension. The conversion factor is dependent on the member's age.

Invalidity benefits

The invalidity benefit payable depends on the level of invalidity suffered by the member.

Invalidity Classification	Degree of Incapacity
A	60% - 100%
B	30% - 59%
C	Less than 30%

Invalidity A benefit

A benefit equal to:

- an immediate lump sum of the Member Component; plus
- a pension calculated as follows:

$$\frac{\text{Total Accrued Multiple (assuming service continued to age 55)} \times \text{Final Average Salary}}{12}$$

Invalidity B Benefit

A benefit equal to:

- an immediate lump sum of the Member Component; plus
- a pension equal to the better of:

i) $50\% \times \text{Total Accrued Multiple (assuming service to 55)} \times \frac{\text{Final Average Salary}}{12}$; and

ii) $\frac{\text{Total Accrued Multiple (to date of exit)} \times \text{Final Average Salary}}{\text{Conversion Factor at Age at Exit}}$

Invalidity C Benefit

The invalidity C benefit is the same as the resignation benefit.

Death benefits for contributory members

The death benefit for a contributory member is:

- an immediate lump sum of the Member Component; plus
- an employer financed lump sum equal to:

  Total Accrued Multiple (assuming service to age 55) x Final Average Salary.

The surviving spouse of the member may convert between 50 per cent and 100 per cent of the employer financed lump sum into a pension. The amount of the pension is calculated as:

$$\text{Employer Financed Lump Sum} \times \text{Proportion Converted} \times \frac{0.67}{12}$$

If the pension option is taken and there are dependent children, additional pension is paid.

Pensions

Pensions are payable for the life of the pensioner and are increased twice each year in line with the movement in the Consumer Price Index (CPI). On the death of the pensioner, a pension of 67 per cent of the member's pension is paid to the surviving spouse (if any). An additional pension is payable in respect of children under age 16 (or age 25 if still in full time education). If there is no surviving spouse then in some circumstances orphan's pensions or a lump sum may be payable.

APPENDIX B

Summary of Membership, Contribution and Benefit Provisions of the Defence Force Retirement and Death Benefits Scheme (DFRDB)

The DFRDB is established under the *Defence Force Retirement and Death Benefits Act 1973*. The Act and associated Regulations, and the Defence Force (Superannuation) (Productivity Benefit) Determination under the *Defence Act 1903* set out the full membership, contribution and benefit provisions of the DFRDB. The provisions of the Scheme are complex and a summary of the principal provisions of the Scheme is set out below. It should not be used to calculate benefits for individuals.

Membership

Membership of the Scheme is closed to new entrants and consists of members of the Scheme as at 30 September 1991 who did not transfer to the MSBS.

Definitions

Salary	Salary is the highest incremental salary for substantive rank plus Service Allowance and some Qualifications and Skills allowances
Final Salary	Salary at the date of termination of service
Statutory Retirement Age	Varies between age 47 and 60 depending on rank for officers, age 55 for other ranks

Member contributions

Member contributions are 5.5 per cent of Salary.

Retirement pay (pension)

Members who separate from the ADF on other than invalidity grounds are entitled to Retirement Pay on separation after completion of a minimum of 20 years service or, if they have reached Statutory Retiring Age for their rank, on completion of 15 years service.

Retirement pay

Years of service	Per cent of final salary	Years of service	Per cent of final salary
15	30.00	28	47.50
16	31.00	29	49.25
17	32.00	30	51.25
18	33.00	31	53.25
19	34.00	32	55.50
20	35.00	33	57.75
21	36.50	34	60.25
22	38.00	35	62.75
23	39.50	36	65.25
24	41.00	37	67.75
25	42.50	38	70.50
26	44.00	39	73.50
27	45.75	40	76.50

Officers who voluntarily retire or are discharged on disciplinary grounds before reaching notional retiring age (generally 5 years below the Statutory Retiring Age) have a penalty applied to the calculation of their Retirement Pay. The penalty is a 3 per cent reduction in Retirement Pay for each year that their age on retirement is less than their notional retiring age.

Commutation

A portion of Retirement Pay may be commuted to a lump sum. The maximum sum is currently 5 times the annual Retirement Pay. The residual pension after commutation is calculated by use of an expectation of life factor ranging from 40.18 at age 31 to 15.60 at age 60 for males, and from 45.53 to 19.51 respectively for females.

Resignation benefit (no entitlement to Retirement Pay)

On resignation prior to being entitled to Retirement Pay, a benefit of a refund of the member contributions is paid.

Retrenchment or redundancy benefit

There is no special retrenchment or redundancy benefit and the benefit is either the Retirement Pay or Resignation Benefit as appropriate.

Invalidity benefits

The invalidity benefit payable depends on the level of invalidity suffered by the member.

Invalidity Classification	Degree of Incapacity
A	60% - 100%
B	30% - 59%
C	Less than 30%

Invalidity A Benefit

A pension of 76.5 per cent of Final Salary.

Invalidity B Benefit

A pension of 38.25 per cent of Final Salary.

Invalidity C Benefit

A lump sum of 1.5 times member contributions.

Death benefits for contributory members

If the member is survived by a spouse, the spouse receives a pension of 62.5 per cent of the pension that would have been paid to the member on being classified Invalid A. An additional pension may be paid in respect of dependent children. The surviving spouse has an option to convert part of the pension to a lump sum. The maximum lump sum is twice the member's Final Salary at death.

If the member is not survived by a spouse but is survived by dependent children under age 25, orphan's pensions may be payable.

If the member is not survived by a spouse or dependent children, a lump sum of 1.5 times member contributions is paid.

Pensions

Pensions are payable for the life of the pensioner and are increased twice each year in line with the movement in the Consumer Price Index (CPI).

On the death of the pensioner, a pension of 62.5 per cent of the member's pension prior to commutation is paid to the surviving spouse (if any). An additional pension is payable in respect of children under age 16 (or age 25 if still in full time education).

If there is no surviving spouse then in some circumstances orphans' pensions may be payable.

Productivity (3 per cent) superannuation benefit

A Productivity Superannuation Benefit of 3 per cent of Salary accumulated with interest at a rate based on the long term Commonwealth Bond rate after allowing for a notional 15 per cent tax is paid in addition to the benefits set out above.

Superannuation guarantee top up

A top up benefit may be payable in addition to the benefits payable above in order to ensure that the benefits payable from the Scheme are at a level which meets Superannuation Guarantee requirements.

APPENDIX C

Demographic assumptions

Set out below is a summary of the demographic assumptions for the MSBS and the DFRDB.

Contributor exits by death and invalidity

The tables below set out the rates adopted for death and invalidity per 1,000 contributors at each age shown. The rates for males and females are assumed to be the same.

MSBS death and invalidity rates (per 1,000 contributors)

Age	Death	Invalidity 'A'		Invalidity 'B'		Invalidity 'C'	
		Officers and cadets	Other ranks	Officers and cadets	Other ranks	Officers and cadets	Other ranks
20	0.49	0.11	0.36	0.51	2.86	1.10	4.58
25	0.54	0.46	1.13	1.08	6.48	2.51	5.20
30	0.56	0.75	1.87	1.65	7.92	2.24	5.20
35	0.58	0.93	2.43	2.23	9.26	2.23	5.20
40	0.59	1.07	2.87	2.80	10.45	2.21	5.20
45	0.61	1.14	3.10	3.37	10.81	2.19	5.20
50	0.76	1.13	3.10	3.60	10.83	2.18	5.20
54	1.17	1.13	3.10	3.60	10.83	2.18	5.20

DFRDB death and invalidity rates (per 1,000 contributors)

Age	Death	Invalidity 'A'		Invalidity 'B'		Invalidity 'C'	
		Officers and cadets	Other ranks	Officers and cadets	Other ranks	Officers and cadets	Other ranks
30	0.56	0.45	1.13	0.90	3.54	0.67	2.72
35	0.58	0.45	1.57	0.54	2.36	0.40	1.92
40	0.59	0.41	1.66	0.23	1.42	0.17	1.24
45	0.61	0.31	1.39	0.10	0.70	0.07	0.69
50	0.76	0.16	0.73	0.04	0.24	0.03	0.27
54	1.17	0.03	0.01	0.03	0.00	0.02	0.00

Contributor exits by retirement and resignation

All contributors who attain age 55 are assumed to retire at age 55. The tables below set out the rates adopted for resignation below this age. The figures represent the numbers leaving per 1,000 contributors at each duration shown.

MSBS resignation rates (per 1,000 contributors)

Years of service	Officers		Other ranks		Cadets
	Male	Female	Male	Female	Male & Female
0	180	180	120	200	109
1	44	67	50	68	77
2	40	47	50	39	53
3	35	40	50	67	37
4	34	40	120	95	34
5	33	43	90	123	37
6	43	49	120	150	43
7	54	56	110	126	54
8	51	67	100	102	51
9	45	82	60	78	45
10	89	125	120	200	89
11	84	82	105	127	84
12	78	91	93	124	78
13	73	97	85	121	73
14	67	101	78	118	67
15	61	80	69	98	61
16	56	67	62	78	56
17	50	61	55	80	50
18	70	60	52	80	70
19	89	68	50	80	89
20	109	121	160	249	109
21	93	120	128	238	93
22	88	120	114	227	88
23	85	120	106	216	85
24	80	120	98	205	80
25	76	120	90	194	76
26	73	120	85	183	73
27	75	120	83	172	75
28	81	120	82	172	81
29	91	120	90	172	91
30	103	130	111	172	103

DFRDB resignation rates (per 1,000 contributors)

Years of service	Officers		Other ranks	
	Male	Female	Male	Female
14	20	38	20	20
15	20	34	15	20
16	20	20	10	10
17	20	20	10	10
18	20	20	10	10
19	20	20	15	10
20	124	180	300	366
21	108	122	207	299
22	100	115	186	256
23	95	115	170	235
24	94	115	157	218
25	93	116	148	200
26	93	118	139	200
27	94	120	134	200
28	98	126	130	200
29	103	135	131	200
30	112	149	135	200
31	121	164	139	200
32	133	164	148	200
33	149	164	163	200
34	176	164	192	200
35	216	164	231	215

The DFRDB has been closed to new entrants since 1991.

Retrenchment and redundancy

No allowance has been made for the effects of retrenchments and redundancies as the retrenchment and redundancy decision is unpredictable and impossible to model with any confidence.

New entrants (MSBS)

The following table shows figures for the assumed age distribution and average salaries of male new entrants.

Appendix C

New entrants (males)

Age	Officers		Other ranks		Cadets	
	%	Average salary ($)	%	Average salary ($)	%	Average salary ($)
17	-	-	0.1	29,996	0.1	18,558
18	0.6	35,598	12.0	29,996	22.0	19,592
19	1.1	37,232	20.0	30,639	24.0	21,583
20	1.5	38,867	16.0	31,281	15.0	24,002
21	2.0	40,502	10.0	31,924	8.7	26,242
22	3.4	42,137	7.0	32,567	7.6	27,358
23	5.5	43,772	5.6	33,210	6.5	27,783
24	5.5	45,407	4.7	33,853	5.4	28,157
25	5.5	47,042	3.9	34,496	4.3	28,435
26	5.5	48,676	3.3	35,139	3.2	28,618
27	5.0	50,311	2.9	35,782	2.1	29,217
28	4.5	51,946	2.4	36,425	1.0	29,348
29	4.1	53,581	1.9	37,068	0.1	29,400
30	3.7	55,216	1.4	37,711	-	-
31	3.4	56,851	1.2	38,354	-	-
32	3.2	58,486	0.9	38,997	-	-
33	3.0	60,121	0.8	39,640	-	-
34	2.8	61,755	0.7	40,283	-	-
35	2.7	63,390	0.6	40,926	-	-
36	2.5	65,025	0.5	41,569	-	-
37	2.4	66,660	0.4	42,211	-	-
38	2.4	68,295	0.3	42,854	-	-
39	2.4	69,930	0.3	43,497	-	-
40	2.4	71,565	0.3	44,140	-	-
41	2.4	71,565	0.3	44,783	-	-
42	2.4	71,565	0.3	45,426	-	-
43	2.4	71,565	0.3	46,069	-	-
44	2.4	71,565	0.3	46,712	-	-
45	2.4	71,565	0.3	46,712	-	-
46	2.4	71,565	0.3	46,712	-	-
47	2.4	71,565	0.3	46,712	-	-
48	2.1	71,565	0.3	46,712	-	-
49	1.8	71,565	0.2	46,712	-	-
50	1.5	71,565	0.1	46,712	-	-
51	1.2	71,565	0.1	46,712	-	-
52	0.9	71,565	-	-	-	-
53	0.6	71,565	-	-	-	-

The corresponding figures for females are:

New entrants (females)

Age	Officers		Other ranks		Cadets	
	%	Average salary ($)	%	Average salary ($)	%	Average salary ($)
17	-	-	-	-	0.1	18,558
18	-	-	14.0	29,996	22.0	19,592
19	-	-	12.7	30,639	24.0	21,583
20	1.0	38,867	9.0	31,281	15.0	24,002
21	4.1	40,502	5.9	31,924	8.7	26,242
22	6.0	42,137	5.6	32,567	7.6	27,358
23	8.2	43,772	5.3	33,210	6.5	27,783
24	8.2	45,407	5.0	33,853	5.4	28,157
25	7.2	47,042	4.7	34,496	4.3	28,435
26	6.1	48,676	4.4	35,139	3.2	28,618
27	5.3	50,311	4.2	35,782	2.1	29,217
28	4.4	51,946	3.9	36,425	1.0	29,348
29	3.8	53,581	3.6	37,068	0.1	29,400
30	3.4	55,216	3.3	37,711	-	-
31	3.0	56,851	3.1	38,354	-	-
32	2.8	58,486	2.8	38,997	-	-
33	2.5	60,121	2.5	39,640	-	-
34	2.4	61,755	2.2	40,283	-	-
35	2.3	63,390	1.9	40,926	-	-
36	2.2	65,025	1.7	41,569	-	-
37	2.2	66,660	1.4	42,211	-	-
38	2.2	68,295	1.1	42,854	-	-
39	2.2	69,930	0.8	43,497	-	-
40	2.2	71,565	0.6	44,140	-	-
41	2.2	71,565	0.3	44,783	-	-
42	2.2	71,565	-	-	-	-
43	2.2	71,565	-	-	-	-
44	2.2	71,565	-	-	-	-
45	2.1	71,565	-	-	-	-
46	2.1	71,565	-	-	-	-
47	2.1	71,565	-	-	-	-
48	2.1	71,565	-	-	-	-
49	1.1	71,565	-	-	-	-

Promotional salary increases

An extract from the assumed scale of salary progression (excluding general salary increases due to inflation) is set out below. Officer and cadet promotional salaries are related to both period of service and entry age. Other rank salaries are only related to period of service. Since the officer and cadet promotional salary scales are two-dimensional, they cannot all be tabulated below. A cross-section of the salary scales is presented for a selection of entry ages.

Salary progression — male and female MSBS officers

Entry	Duration					
Age	0	1	5	10	20	30
20	1.000	1.044	1.219	1.432	1.760	2.081
23	1.000	1.068	1.314	1.503	1.798	2.202
27	1.000	1.034	1.155	1.279	1.506	1.852

Salary progression — male DFRDB officers

Entry	Duration					
Age	0	1	5	10	20	30
20	1.000	1.039	1.193	1.377	1.654	1.948
23	1.000	1.065	1.309	1.447	1.723	2.055
27	1.000	1.040	1.128	1.237	1.457	1.769

Salary progression — female DFRDB officers

Entry	Duration					
Age	0	1	5	10	20	30
20	1.000	1.039	1.193	1.377	1.654	1.827
23	1.000	1.065	1.309	1.447	1.689	1.866
27	1.000	1.040	1.128	1.237	1.396	1.542

Salary progression — cadets

Entry	Duration					
Age	0	1	5	10	20	30
18	1.000	1.074	2.654	3.330	4.047	4.767
21	1.000	1.022	1.993	2.436	2.918	3.484
25	1.000	1.000	1.802	2.525	2.998	3.722

Salary progression — all other ranks

Duration					
0	**1**	**5**	**10**	**20**	**30**
1.000	1.280	1.529	1.678	1.945	2.102

As an example, consider an MSBS female officer who joined at age 23. The salary of such a person at age 33 would, in the absence of inflation, be assumed to be 1.503 times the commencing salary at age 23.

Pensioner mortality

The Table below shows the mortality rates assumed for pensioners in the 2005/2006 year.

Pensioner mortality (per 1,000 pensioners)

Age	Males		Females	
	Age Retired	**Invalid Retired**	**Age Retired**	**Invalid Retired**
20	-	6.50	-	6.50
30	0.24	6.50	0.48	6.50
40	0.73	6.50	0.72	6.50
50	2.18	11.01	2.04	11.01
55	3.78	12.41	3.36	12.41
60	6.55	15.15	5.14	15.15
65	11.35	22.50	8.09	22.50
70	19.66	45.24	13.49	45.24
75	34.06	67.91	22.64	67.91
80	59.00	92.35	38.59	92.35
90	161.91	197.73	129.39	197.73
100	244.79	353.55	238.27	353.55

Widows are assumed to have the same mortality rates as female age retirements. Likewise widowers are assumed to have the same mortality rates as male age retirements.

Improvements in pensioner mortality

The following table summarises the assumed rates of improvement in future mortality of age retirements. No allowance has been made for future improvements in mortality for invalid retirements.

Assumed rates of mortality reduction (per cent per annum)

Age	Male	Female
60	2.4	1.9
70	2.0	2.0
80	1.5	1.9
90	1.1	1.3
100	1.3	1.1

Proportions married and age differences

The assumed proportions married at each age is shown below:

Proportions married

Age	Males (%)	Females (%)
20	2	7
30	49	55
40	76	55
50	76	55
60	76	50
70	70	37
80	59	16

Married male members are assumed to be married to females four years their junior on death.

Married female members are assumed to be married to males three years their senior on death.

GDP increases

GDP growth rates are based on Commonwealth Treasury projections of nominal GDP values adjusted for consistency with the wage growth assumption adopted for this valuation. Given this adjustment, they should not be regarded as official Commonwealth Treasury projections.

Real GDP growth rates

Year	Per cent per annum
2005/06	2.2
2006/07	3.0
2007/08	2.9
2008/09	2.9
2009/10	2.9
2010/11	2.8
2011/12	2.7
2012/13	2.6
2013/14	2.5
2014/15	2.5
2015/16	2.4
2016/17	2.3
2017/18	2.3
2018/19	2.2
2019/20	2.2
2020/21	2.2
2021/22	2.2
2022/23	2.1
2023/24	2.1
2024/25	2.1
2025/26	2.1
2026/27	2.1
2027/28	2.1
2028/29	2.1
2029/30	2.1
2030/31	2.1
2031/32	2.1
2032/33	2.1
2033/34	2.1
2034/35	2.1
2035/36	2.1
2036/37	2.1
2037/38	2.1
2038/39	2.1
2039/40	2.1
2040/41 to 2044/45	2.0

Clawback

The main additional assumptions used in the clawback calculations are summarised below:

- taxation, social security and Medicare legislation will remain unchanged, apart from inflationary increases in benefit levels and thresholds. Note that the proposed changes to the taxation treatment of superannuation announced in the 2006-07 Budget have not been taken into account;

- the long term rate of increase in social security benefit levels and thresholds, and the cost of pensioner fringe benefits will be 4.0 per cent per annum;

- the long term rate of increase in taxation and Medicare levy thresholds will be 4.0 per cent per annum;

- married couples will split their income so far as is possible;

- MSBS employer component lump sum benefits will be distributed as follows for the purpose of lump sum tax:

  – 85 per cent from an untaxed source; and

  – 15 per cent from a taxed source.