

# **REPORT ON THE ACTUARIAL INVESTIGATION OF THE:**

- STATE AUTHORITIES SUPERANNUATION SCHEME**
- STATE AUTHORITIES NON-CONTRIBUTORY  
SUPERANNUATION SCHEME**
- STATE SUPERANNUATION SCHEME**
- POLICE SUPERANNUATION SCHEME**

**AS AT 30 JUNE 2012**

**VOLUME I  
SAS TRUSTEE CORPORATION**

4 December 2012

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## 1

## Introduction and Summary of Results

### 1.1 Introduction

1.1.1 As requested by the SAS Trustee Corporation (the Trustee) we have carried out an actuarial valuation of the following schemes in accordance with the relevant legislation governing each of the schemes:

- the State Authorities Superannuation Scheme (SASS)
- the State Authorities Non-Contributory Superannuation Scheme (SANCS)
- the State Superannuation Scheme (SSS)
- the Police Superannuation Scheme (PSS)

The previous actuarial investigation of SASS, SANCS, SSS and PSS was carried out by myself as at 30 June 2009 and the results were set out in a report dated December 2009.

This report conforms to the requirements of *Professional Standard 400* of the Institute of Actuaries of Australia (PS 400).

In August 2010 there was a major change in the provisions of the standard, and the scope applicable to Public Sector funds was expanded. This has caused some changes to the contents of this report compared with previous triennials.

The Schemes are not subject to the provisions of the Superannuation Industry (Supervision) Act, but under an agreement with the Commonwealth, the New South Wales government has agreed to conform with the principles of the Commonwealth Retirement incomes policy.

This report has been prepared in accordance with the timetable agreed with the Trustee and this timing is consistent with the 2006 and 2009 Triennial Reviews.

1.1.2 Each of the schemes were established on the following dates and have been closed to new entrants as set out in the table below:

| Scheme | Commencement    | Closed to New Entrants |
|--------|-----------------|------------------------|
| SASS   | 1 April 1988    | 19 December 1992       |
| SANCS  | 1 April 1988    | 8 December 1992        |
| SSS    | 1 July 1919     | 1 July 1985            |
| PSS    | 1 February 1907 | 31 March 1988          |

The main characteristics of each scheme are:

- SASS** The benefit from employee contributions is the accumulation of those contributions plus interest.
- The employer financed benefit is generally a lump sum, and is a defined benefit varying with final average salary, period of membership and the level of employee contributions.
- SANCS** Employees do not contribute. The employer financed benefit is generally a lump sum of 3% times final average salary times years of membership, reduced for tax.
- SSS** On retirement, a defined benefit (pension or lump sum) is payable. The level of benefit depends upon the number of units that have been purchased.
- PSS** On retirement, a defined benefit (pension or lump sum) is payable. The level of benefit depends upon final average salary and length of membership.

1.1.3 The purposes of the triennial investigation are:

- (1) To assess the suitability of the actuarial assumptions. The triennial investigation provides an opportunity to carefully consider recent experience and to modify the actuarial basis accordingly;
- (2) To calculate the unfunded liability on a scheme basis, thereby determining the extent to which the Schemes and the Pooled Fund are funded;
- (3) To investigate the funding status of the major employer groupings: the General Government sector, Universities and PTEs and other employers;
- (4) To make contribution recommendations in respect of employers;
- (5) To provide information which can be used for other financial purposes such as detailed projections of future cash flows.
- (6) To assess the sensitivity of the unfunded liability to changes in economic assumptions and to pensioner mortality.

1.1.4 In accordance with legislation distinctions are made between groups of employers as set out in the following table.

| Scheme | Employers  |
|--------|--|
| SASS   | Employers separated into Parts 1 and 3 in accordance with legislation. Part 1 includes the Crown and other employers, Part 3 includes hospitals and other bodies. Refer Section 6 Volume II for a full listing of the employers. |
| SANCS  | Employers are subdivided in the same manner as SASS above.   |
| SSS    | Employers under SSS are essentially equivalent to Part 1 employers under SASS.   |
| PSS    | No subdivision necessary.  |

Separate results are not provided in respect of Part 1 and Part 3. Part 3 information is shown separately in Volume II of this report and in section 9 of Volume II.

- 1.1.5 The number of contributors and pensioners in each of the schemes at the current and previous investigation dates is set out below:

| Contributors | SASS   | SANCS  | SSS    | PSS   | Total*  |
|--------------|--------|--------|--------|-------|---------|
| 30 June 2012 | 38,004 | 53,064 | 13,405 | 1,666 | 106,139 |
| 30 June 2009 | 46,741 | 68,979 | 19,903 | 2,352 | 137,975 |

| Pensioners   | SASS  | SANCS | SSS    | PSS   | Total  |
|--------------|-------|-------|--------|-------|--------|
| 30 June 2012 | 3,888 | n/a   | 49,068 | 6,522 | 59,478 |
| 30 June 2009 | 4,099 | n/a   | 44,516 | 6,190 | 54,805 |

\* Note that each SANCS member is also a member of one of the other schemes.

- 1.1.6 The Pooled Fund assets at 30 June 2012 totalled \$34,351.9 million compared to \$28,847.7 million at the last valuation. The assets were allocated to each scheme as follows:

| Assets (\$million) | SASS   | SANCS | SSS    | PSS   | Total  |
|--------------------|--------|-------|--------|-------|--------|
| 30 June 2012       | 10,128 | 1,669 | 18,910 | 3,645 | 34,352 |
| 30 June 2009       | 7,854  | 1,030 | 17,214 | 2,750 | 28,848 |

Note that the asset levels of all schemes have increased significantly over the three years to 30 June 2012. This reflects large Crown Contributions received in 2011-2012.

- 1.1.7 The employer reserves as at 30 June 2012 in respect of each scheme are as follows:

| \$ million  | SASS   | SANCS | SSS    | PSS   | Total  |
|---|--------|-------|--------|-------|--------|
| Assets  | 10,128 | 1,669 | 18,910 | 3,645 | 34,352 |
| Less,   |        |       |        |       |        |
| ➤ Member reserves (including co contributions and SASS and SANCS deferreds) | 5,578  | 346   | 3,000  | 296   | 9,220  |
| ➤ Death/ disability reserves  | 1      | -     | -      | -     | 1      |
| Adjustments   | 1      | 50    | 13     | 3     | 67     |
| Employer reserve  | 4,550  | 1,373 | 15,923 | 3,352 | 25,198 |

The adjustments noted above represent differences between the employer records (which are required for subdivision by scheme, part and employer) and the accounts.

- 1.1.8 Three approaches have been adopted for this investigation – a funding valuation, financial position valuation and an investment objective valuation.

The major part of the report relates to the funding valuation which is consistent with the approach adopted in previous valuations. The purpose of the funding valuation is to assess the financial condition of the fund from the perspective of setting contribution rates. The focus in this report is on the funding valuation as it incorporates our best estimate of future experience.

The results of the investigation on the financial position valuation are set out in section 8 of the report. The financial position valuation is an assessment of the Pooled Fund on a stand alone scenario: a hypothetical situation where the Trustee does not rely on the

future contributions by the employer and where the Trustee therefore needs to be as certain as practicable that there are sufficient assets in the fund to meet the liabilities to members that have accrued to the date of the investigation. The financial position valuation assumes the Trustee invests only in Commonwealth bonds in order to be as certain as possible of the value of future assets. The financial position valuation basis is similar to the approach required for Government statutory reporting purposes as per international accounting standard IAS 19 (or AASB 119 as adopted in Australia).

The difference between the net liability on the financial position valuation and the net liability on the funding valuation is a measure of the value of the employer's covenant. That is, the financial backing of the employer allows the Trustee to invest in assets with higher expected return, but with less security.

The results of the investigation on the investment objective valuation are set out in section 9 of the report. The Trustee's investment objective is to achieve a rate of investment return of CPI plus 4.5%; and we have assumed that this objective relates to the assets backing the liabilities of non pensioners. This objective of a return of CPI plus 4.5% is therefore slightly lower than the investment return assumption of CPI + 4.8% adopted for the funding valuation (see section 1.1.9).

The difference between the net liability on the investment objective valuation and the net liability on the funding valuation is a measure of the shortfall in the funding recommendations if the Trustee's investment objectives are precisely met.

- 1.1.9 For all schemes the key long-term economic assumptions for the funding valuation are as follows:

| Long-term assumptions                     | This valuation<br>% per annum              | Last valuation<br>% per annum              |
|---|--|--|
| Rate of investment return / discount rate | 8.3% for pensioners,<br>7.3% other members | 8.3% for pensioners,<br>7.3% other members |
| Rate of general salary escalation         | 4.0%                                       | 4.0%                                       |
| Rate of increase in CPI                   | 2.5%                                       | 2.5%                                       |

The rate of investment return assumption is higher for pensioners because no tax is payable in respect of assets backing current pension liabilities. Note that the higher investment return assumption applies for all pensioners, not just current pensioners.

The following special short-term assumptions have been adopted for the 6 years following 30 June 2012, with the long-term assumption applying thereafter:

SASS, SANCS and SSS : 2.7% per annum for 6 years  
PSS : 3.5% per annum for 6 years

The reason for the different salary increase assumption for PSS compared to the other schemes is that Police personnel are not subject to the *Industrial Relations (Public Sector Conditions of Employment) Regulation 2011* which limits salary increases for NSW public sector employees to 2½% per annum, plus productivity gains

The introduction of the short term salary increase rates has resulted in a reduction in the liability and hence a source of surplus to the schemes. There were no short term assumptions for the 2009 investigation.

- 1.1.10 The assumptions for the financial position valuation are the same as for the funding valuation except for the rate of investment return / discount rate which is set at 3.06% per annum. This rate is the ten year Commonwealth bond rate at 30 June 2012, allowing for the fact that interest is payable six monthly.
- 1.1.11 The assumptions for the investment objective valuation are the same as for the funding valuation except for the rate of investment return / discount rate which is set at 8.0% per annum for pensioners and 7.0% per annum for other members.
- 1.1.12 The different investment return / discount rate assumptions of the three valuations are summarised in the following table:

| Valuation basis      | Rate of investment return / discount rate                         |
|----------------------|---|
| Funding              | 8.3% per annum for pensioners<br>7.3% per annum for other members |
| Financial position   | 3.06% per annum   |
| Investment objective | 8.0% per annum for pensioners<br>7.0% per annum for other members |

- 1.1.13 A comprehensive analysis was carried out in respect of all demographic assumptions used in the investigations of the Pooled Fund schemes. The analysis related mainly to the three years, 1 July 2008 to 30 June 2011.

This analysis led to changes in relation to the rates of mortality (both contributor and pensioner), hurt on duty disability, retirement and early retirement, proportions married and proportions choosing lump sums or pensions on retirement.

Short term redundancies were also assumed to reflect retrenchments in the public sector foreshadowed by the NSW Government. The rates adopted for the 4 years following 30 June 2012 were as specified by NSW Treasury and used for the latest Crown Financial Statements.

Changes in contributor decrements and deferral of retirement in SASS and SANCS and reduced hurt on duty disability rates in respect of the PSS have provided only a small offset to the effect of improvements in pensioner mortality, the assumed rate of people taking pensions, proportions married and short term redundancies, with the result that the demographic basis changes have produced a strengthening of the basis and hence a source of deficiency to the schemes overall.

## 1.2 Results on the funding valuation basis

- 1.2.1 The unfunded liability for the Pooled Fund has reduced from \$19,871.2 million to \$18,978.8 million over the three years to 30 June 2012.



- 1.2.2 The unfunded liabilities of each of the schemes or sub-divisions within schemes are as follows:

| \$ million                                     | SASS    | SANCS   | SSS      | PSS     | Total    |
|--|---------|---------|----------|---------|----------|
| Employer accrued benefits                      |         |         |          |         |          |
| ➤ contributors                                 | 6,893.6 | 2,202.5 | 4,711.4  | 1,314.9 | 15,122.4 |
| ➤ deferred members                             |         |         | 503.0    | 17.9    | 520.9    |
| ➤ pensioners                                   | 665.9   |         | 22,802.1 | 5,065.4 | 28,533.4 |
| Total employer accrued liability               | 7,559.5 | 2,202.5 | 28,016.5 | 6,398.2 | 44,176.7 |
| Less,<br>Employer reserve account              | 4,550.2 | 1,373.3 | 15,922.7 | 3,351.7 | 25,197.9 |
| Employer unfunded liability as at 30 June 2012 | 3,009.3 | 829.2   | 12,093.8 | 3,046.5 | 18,978.8 |
| Employer unfunded liability as at 30 June 2009 | 4,020.1 | 1,531.7 | 10,742.7 | 3,576.6 | 19,871.2 |

The employer unfunded liabilities shown above have not been grossed up for contributions tax.

Employer contributions towards meeting unfunded liabilities must be grossed up to allow for tax on contributions. Wherever employer contribution rates have been calculated in this report, the contribution rates have been grossed up accordingly.

- 1.2.3 The results in 1.2.2 relate to the employer financed liabilities and assets only. Taking into account employee liabilities and assets, the funding valuation results are:

|   |               |
|---|---------------|
|   | \$ million    |
| Total accrued liability                 | 53,331        |
| Total reserve accounts                  | <u>34,352</u> |
| Unfunded liabilities as at 30 June 2012 | 18,979        |

- 1.2.4 Sensitivity runs were carried out, and the results are set out in the following table:

| Basis                       | Unfunded liability under varying assumptions<br>(\$ million) |       |          |         |          |
|-----------------------------|--|-------|----------|---------|----------|
|                             | SASS   | SANCS | SSS      | PSS     | Total    |
| Standard                    | 3,009.3  | 829.2 | 12,093.8 | 3,046.5 | 18,978.8 |
| Investment return plus 1%   | 2,551.5  | 711.0 | 9,317.8  | 2,359.4 | 14,939.7 |
| Investment return minus 1%  | 3,532.6  | 961.3 | 15,403.2 | 3,883.6 | 23,780.8 |
| Salary increases plus 1%    | 3,404.0  | 961.6 | 12,260.2 | 3,120.1 | 19,745.9 |
| Salary increases minus 1%   | 2,649.2  | 708.9 | 11,935.3 | 2,977.1 | 18,270.6 |
| CPI increases plus 1%       | 3,137.8  | 829.2 | 15,405.1 | 3,849.1 | 23,221.2 |
| CPI increases minus 1%      | 2,898.8  | 829.2 | 9,280.7  | 2,377.1 | 15,385.8 |
| Pensioner mortality higher* | 3,003.6  | 829.2 | 11,860.7 | 2,997.6 | 18,691.1 |
| Pensioner mortality lower** | 3,021.4  | 829.2 | 12,176.3 | 3,063.3 | 19,090.3 |

\* Decreasing the rate of mortality improvements by applying the 100 year mortality improvement trend from the Australian Life Tables 2005-07 from 1 July 2011, rather than applying the 25 year mortality trend (faster) for seven years and the 100 year mortality trend (slower) thereafter results in higher pensioner mortality.

\*\* Increasing the rate of mortality improvement by extending the application of the 25 year mortality trend (faster) to cover the period 1 July 2011 to 30 June 2021 (10 years), rather than over seven years. The 100 year mortality improvement trend (slower) is applied thereafter. This results in lower pensioner mortality.

The above table demonstrates that the rate of investment return has the major impact on the financial condition of the Pooled Fund. The table also shows that a worsening of an economic parameter by 1% per annum has a greater dollar effect than a favourable change of 1% per annum. This effect is particularly noticeable for SSS and PSS. This effect is analysed further in section 7.5 of Volume II.

The table also shows that changes in pensioner mortality have potential for significant impact on those schemes with a large proportion of liabilities in pensions.

### 1.3 Major items contributing to current results

1.3.1 The major items of surplus and deficiency which have affected the schemes over the period since the last actuarial investigation are as follows:

| Item   | Comment   | Amount of deficiency /surplus (-) \$ billion |
|--|---|--|
| Unfunded liability as at 1 July 2009         |   | 19.9   |
| Investment earnings                          | Investment earnings of the Pooled Fund were somewhat lower than assumed and this resulted in an item of deficiency.     | 1.0  |
| Contributions                                | Contributions to the Crown funded employer reserves exceeded accruals over the period, resulting in an overall surplus. | -7.0   |
| Change of actuarial basis                    | Pensioner assumptions   | 0.6  |
|  | Lower commutation   | 0.3  |
|  | PSS lower disability  | -0.1   |
|  | Short-term redundancies   | 0.2  |
|  | Short-term salary increase rate   | -0.7   |
|  | Other net effects   | -0.1   |
|  | The overall impact of the changes in the valuation basis was an item of deficiency.                                     | 0.2  |
| Impact of disability experience in PSS       | The impact of the lower actual than expected disabilities in the PSS was an item of surplus.                            | -0.1   |
| Other exits                                  | Generally fewer other exits and lower commutation rates were compensating surpluses and deficiencies over the Fund.     | -0.0   |
| Salary increases                             | Higher than expected salary increases led to a deficiency.  | 0.1  |
| CPI increases                                | Higher than anticipated CPI increases led to a deficiency.  | 0.1  |
| Interest on the previous unfunded liability. | Interest on the previous unfunded liability at 1 July 2009 resulted in a deficiency.                                    | 4.8  |
| Other  | (Less than \$0.1 billion)   | 0.0  |
| Unfunded liability as at 30 June 2012        |   | 19.0   |

The major items of surplus were higher contributions overall than benefit accruals and lower than expected PSS disability; while the change in the actuarial basis, investment earnings being lower than anticipated, interest on the opening unfunded liability and higher than anticipated salary and CPI increases were the major items of deficiency.

## 1.4 Funding plans

### 1.4.1 Position as at 30 June 2012

The financial positions as at 30 June 2012 of the main funding groups are:

|                           | Present value of employer financed past service benefits<br>\$ million | Value of assets<br>\$ million | Unfunded liability<br>\$ million |
|---------------------------|--|-------------------------------|----------------------------------|
| General Government sector | 36,703   | 20,670                        | 16,033                           |
| Universities              | 3,514  | 1,142                         | 2,372                            |
| PTEs and others           | 3,959  | 3,385                         | 574                              |
| Total                     | 44,177   | 25,198                        | 18,979                           |

This compares with the position as at 30 June 2009:

|                           | Present value of employer financed past service benefits<br>\$ million | Value of assets<br>\$ million | Unfunded liability<br>\$ million |
|---------------------------|--|-------------------------------|----------------------------------|
| General Government sector | 32,460   | 14,688                        | 17,772                           |
| Universities              | 3,285  | 1,434                         | 1,851                            |
| PTEs and others           | 3,839  | 3,591                         | 248                              |
| Total                     | 39,584   | 19,713                        | 19,871                           |

### 1.4.2 General Government sector

The 2012-13 Budget Statement included the comment "Funding arrangements are reviewed every three years following the release of the triennial actuarial review, and will be reviewed following completion of the current triennial review in December 2012."

The Non-Crown General Government sector employers are assumed to continue to contribute at recent levels of contributions as a percentage of salaries of members. The contributions for the Crown are determined to fully fund the General Government sector by 30 June 2030.

The current funding plan for the General Government sector is to determine the contributions which, when increased at 5% per annum, will fully fund the sector by 30 June 2030. This is an appropriate strategy. At the present time this funding strategy results in relatively stable contributions from year to year, but in the years close to 2030 there is the potential for significant variation in the contribution level unless the investment strategy has relatively low volatility.

It is recommended that the government's review of the funding arrangements incorporate the demographic assumptions adopted in this report.

### 1.4.3 Universities

The combined deficit of the sub-funds relating to universities on the funding basis is \$2.4 billion. On the current level of contributions individual university sub-funds are expected to exhaust their employer reserves over the period 2014-15 to 2021-22. That is, the funding position of the Universities needs to be resolved by 2014/15, otherwise at least one of the University sub funds will not be able to meet benefit payments. It is noted that the first instance of sub fund depletion is expected to occur before the effective date of the next actuarial triennial investigation.

Legal advice obtained by the Trustee states that the Trustee cannot pay benefits once a university employer sub-fund is exhausted. That is, other Pooled Fund assets are not available for a university employer sub-fund in deficit.

Since March 2012, senior government officials from NSW and the Commonwealth have been actively considering the funding position of the NSW universities in the Pooled Fund. The Australian Government Actuary, and myself, are actively working with Government officials on this issue. The respective governments have made a commitment to resolve the matter as soon as possible.

It is expected that the university sub-funds will be jointly funded by the NSW Government, the Commonwealth and the universities themselves. Without knowledge of the details, it is not appropriate to comment on the possible outcome of the final funding arrangements.

However in principle, my contribution recommendations for the purposes of this report are:

- where funding is the responsibility of the universities, then contributions should be at least at the level required if the superannuation arrangements were regulated by the Australian Prudential Regulation Authority (APRA).
- where funding is the responsibility of the NSW Government / Commonwealth, the contribution strategy must be evidenced in writing to the Trustee, and must be at least of the level of "pay as you go" funding.

### 1.4.4 Public Trading Enterprises and other employers

As a group, Public Trading Enterprises (PTEs) and other employers have a deficiency on the funding basis of \$0.6 billion. Recommended individual funding plans for each employer are set out in section 9 of Volume II.

It is further recommended that:

- those employers that are not State backed be identified;
- the relevant legislation be altered so that contribution levels for non State backed employers be determined by the Trustee; that is, there is no involvement of NSW Treasury in setting the contributions.
- for non State backed entities the contribution recommendations should be adjusted (where necessary) to at least the level required if the superannuation arrangements were regulated by APRA.

## 1.5 Funding Status

Funding status levels for PTEs and other employers are set out in section 9 of Volume II.

## 1.6 Financial position valuation

The results of the financial position valuation for the Pooled Fund are:

|                                 | Employer<br>\$ million | Member<br>\$ million | Total<br>\$ million |
|---------------------------------|------------------------|----------------------|---------------------|
| Value of accrued benefits, less | 82,609                 | 9,154                | 91,763              |
| Assets                          | 25,198                 | 9,154                | 34,352              |
| Unfunded liability              | 57,411                 | -                    | 57,411              |

This valuation basis is similar to that required under accounting standard AASB 119.

## 1.7 Investment objective valuation

The results of the investment objective valuation for the Pooled Fund are:

|                                 | Employer<br>\$ million | Member<br>\$ million | Total<br>\$ million |
|---------------------------------|------------------------|----------------------|---------------------|
| Value of accrued benefits, less | 45,600                 | 9,154                | 54,754              |
| Assets                          | 25,198                 | 9,154                | 34,352              |
| Unfunded liability              | 20,402                 | -                    | 20,402              |

# 2

## Summary of Information Provided

*For the purposes of our investigation we have been provided with information from the Trustee and from the Administrator, Pillar in respect of legislation, membership and financial statements for each of the Schemes within the Pooled Fund.*

### 2.1 Legislation

2.1.1 We have been provided with the consolidated legislation in respect of each of the Schemes within the Pooled Fund. The principal changes to the operation of the Scheme through this legislation in the period since the previous investigation are:

- Provisions to recover the additional contributions tax for members who have not provided a TFN;
- Provisions enabling the increase of certain death benefits previously reduced to offset contributions tax.

2.1.2 A summary of the contribution, benefit and transitional provisions of each of the relevant Acts and Regulations as at 30 June 2012 forms Section 1 of Volume II to this Report. In brief, each of the Schemes provides benefits as follows:

|              |   |
|--------------|---|
| <b>SASS</b>  | Provides an accumulation benefit from employee contributions and a defined benefit from employer contributions. The defined benefit is determined according to the number of points accrued by a member, and the points earned varies with the level of member contributions. If an employee contributes 6% of salary for thirty years then he/she qualifies for an employer-financed benefit of 4.5 times final average salary (less 15% tax in respect of periods after 1 July 1988). |
| <b>SANCS</b> | Provides a defined benefit to members of SASS, PSS and SSS. The Scheme was originally established to meet Award obligations. The Scheme is non-contributory.  |
| <b>SSS</b>   | Provides a defined benefit on retirement, which reflects the “units of pension”, purchased by members. An accumulation benefit is payable on resignation.   |
| <b>PSS</b>   | Is a defined benefit scheme where members can take either pensions or a commuted lump sum. Due to the nature of the occupation specific benefits are payable if injury or death occurs on duty.   |

2.1.3 The change in the definition of salary from superannuation salary to OTE for purposes of the Superannuation Guarantee legislation necessitated changes to the MRB defined in the Benefit Certificate.

## 2.2 Membership

2.2.1 Pillar provided us with computer disks containing certain information on:

- any person who is or had been a contributor to any of the Pooled Fund Schemes at any time during the period 1 July 2009 to 30 June 2012; and
- Persons receiving pensions from the Schemes at any time during the period 1 July 2009 to 30 June 2012; and
- Persons who had a deferred interest in any of the Schemes during the period 1 July 2009 to 30 June 2012.

Also, data was provided in respect of the year 1 July 2008 to 30 June 2009 for the purposes of the experience analysis.

2.2.2 Section 4 of Volume II of this report contains detailed analysis of the Schemes' membership data provided.

2.2.3 The membership data was edited and checked for reasonableness, and we are satisfied as to its accuracy for the purposes of this investigation.

## 2.3 Financial

2.3.1 The Corporation provided us with copies of its Annual Report for the years ended 30 June 2010, 2011 and 2012, which include the audited accounts. We were also provided with schedules showing the breakdown of these accounts between the various Schemes and reserves and computer file records in respect of individual employer reserves.

2.3.2 Volume II contains further details from the accounts and includes an apportionment of assets between the various Scheme reserves for the purposes of the valuation.



# 3

## Assets and Accounts

*When conducting an actuarial investigation of a Scheme the actuary needs to have regard to both the assets and the liabilities of the Scheme. It is incumbent on the actuary to review the underlying assets of the Scheme to see if they are an appropriate match for the emerging liabilities. This section outlines our review of the assets of the Pooled Fund in relation to the actuarial valuation of the Schemes.*

### 3.1 Structure of Investments

- 3.1.1 Following the introduction of the Superannuation Administration Act 1987, the assets of the four schemes were pooled, for investment and related purposes. There is no separate portfolio of assets for each Scheme as such, but for convenience reference to 'the Fund' may be taken as reference to that part of the Pooled Fund that the Trustee holds in trust for that particular Scheme. The following discussion, however, relates to the Pooled Fund in its entirety.
- 3.1.2 The Auditor-General reported that he has conducted an audit of the accounts of the Pooled Fund as at 30 June 2012, to provide reasonable assurance that they are free of material misstatement. In his opinion the financial statements of the Pooled Fund complied with Section 41B of the Public Finance and Audit Act 1983. They presented the financial position of the Fund as at 30 June 2012 fairly and in accordance with applicable Accounting Standards.

### 3.2 Investment Arrangements

- 3.2.1 As at 30 June 2012 investment management for the Pooled Fund was carried out by thirty eight investment managers. At the previous triennial investigation investment management was carried out by thirty seven investment managers.
- 3.2.2 The Trustee manages four investment portfolios: Growth, Balanced, Conservative Growth and Cash. However the latter three strategies only apply in respect of Member Investment Choice for certain members of the Pooled Fund. The assets backing the defined benefit liabilities are invested in the Growth strategy
- 3.2.3 The long term investment strategy for the Growth Portfolio is to exceed the change in CPI by 4.5% per annum over rolling 10 year periods. In addition, short term performance up to three years is monitored against comparable funds as measured by the appropriate universe of managers in the Intech Super Survey.

### 3.3 Asset allocation from 1 July 2012

- 3.3.1 Effective 1 July 2012, the Trustee has adopted a different classification within the asset allocation. Rather than allocating asset classes into two categories (growth and defensive), the Trustee now allocates the asset classes into three categories — liquid defensive, liquid growth and alternatives — to more closely reflect the role of each category within the portfolio.
- 3.3.2 Liquid growth is expected to make a large contribution to long-term returns, but returns are likely to be highly volatile. The allocation to liquid growth, as well as the allocation

between Australian equities and international equities within the liquid growth category, may be changed from time to time depending on market opportunities.

- 3.3.3 Alternatives serve a dual purpose. Some of the asset classes in this category are expected to generate returns in line with or higher than CPI+4.5%, which is the objective for the Growth Strategy. Other asset classes within the alternatives category are expected to have a dual objective of providing CPI+4.5%, but with the ability to provide downside protection when markets are turbulent.
- 3.3.4 Liquid defensive represents asset classes that tend to do well when markets are turbulent. These asset classes provide capital protection when most other strategies are not performing well, but they are not expected to generate CPI+4.5% over the long term.
- 3.3.5 As at 30 June 2012, the Actual Asset Allocation was:

| Category                | Sector                       | %     | \$ million |
|-------------------------|------------------------------|-------|------------|
| <b>Liquid Growth</b>    | Australian equities          | 27.3  | 9,513.1    |
|                         | International equities       | 22.9  | 7,992.3    |
|                         | Sub-total                    | 50.3  | 17,505.4   |
| <b>Alternatives</b>     | Property                     | 8.7   | 3,044.6    |
|                         | Alternative assets           | 13.1  | 4,565.6    |
|                         | Sub-total                    | 21.8  | 7,610.2    |
| <b>Liquid defensive</b> | Australian Fixed Interest    | 5.1   | 1,767.4    |
|                         | International Fixed Interest | 2.4   | 839.8      |
|                         | Cash                         | 20.4  | 7,106.6    |
|                         | Sub-total                    | 27.9  | 9,713.8    |
| <b>Total</b>            |                              | 100.0 | 34,829.4   |

3.3.6 As at 30 June 2012, the Strategic Asset Allocation was:

| Category                | Sector               | %              |
|-------------------------|----------------------|----------------|
|                         |                      | <b>New SAA</b> |
| <b>Liquid Growth</b>    | Aus Equities         | 31.0%          |
|                         | Int'l Equities       | 23.0%          |
|                         | Sub-total            | 54.0%          |
| <b>Alternatives</b>     | Infrastructure       | 9.0%           |
|                         | Property             | 8.0%           |
|                         | Opp. Investments     | 13.5%          |
|                         | Sub-total            | 30.5%          |
| <b>Liquid defensive</b> | Aus Fixed Interest   | 5.5%           |
|                         | Int'l Fixed Interest | 2.5%           |
|                         | Cash                 | 7.5%           |
|                         | Sub-total            | 15.5%          |
|                         | Total Portfolio      | 100.0%         |

## 3.4 Investment policies

### 3.4.1 Derivatives

Derivatives, including futures and options, can be used by investment managers. However, each manager's investment mandate clearly states that derivatives may only be used to facilitate efficient cashflow management or to hedge the portfolio against market movements and cannot be used for speculative purposes or gearing the investment portfolio.

### 3.4.2 Currency hedging policy

The Trustee's policy for currency hedging at 30 June 2012 was:

- international equities are hedged from 0% to 64% into Australian dollars
- international property, infrastructure and alternative assets are hedged from 0% to 100% into Australian dollars
- international fixed interest assets (sovereign and corporate debt) are hedged 100% into Australian dollars.

### 3.4.3 Master custodian

The Trustee Board has appointed JPMorgan Chase Bank, NA, as master custodian to hold the Pooled Fund's assets. The master custodian also values the Fund daily and monitors each investment manager's daily activity to ensure compliance with its investment mandate.

### 3.5 Asset Valuation

- 3.5.1 Investments are valued at the balance date on a net market value basis. The estimated market value is determined as the net realisable value after the deduction of the estimated costs of disposal. Changes in market values, representing gains or losses, are brought to account as investment revenue in the period in which they occur. The Trustee has determined details of the method of valuation used for each class of investment as follows:

| Investment Class                          | Method of valuation  |
|---|--|
| Short Term Securities                     | Market rates.  |
| Fixed interest securities                 | Relevant fixed interest securities markets.  |
| Equities, Unit Trusts and Unlisted Assets | Relevant stock exchange quoted last sale price, or if unlisted, independent valuation.   |
| Property                                  | Current market value determined individually by independent registered valuers on the basis of an exchange between knowledgeable and willing parties in an arm's length transaction. |

### 3.6 Pooled Fund Performance

- 3.6.1 The table below summarises the total income and expenditure of the Pooled Fund during the intervalation period. The data has been taken from the audited annual reports of the Trustee. According to the Audit Report, all assets have been accounted for and valued in accordance with the principles described above.

| Financial Year ending 30th June | 2010<br>\$m     | 2011<br>\$m     | 2012<br>\$m     | 3 years to 2012<br>\$m |
|---------------------------------|-----------------|-----------------|-----------------|------------------------|
| <b>Reserves at beginning</b>    | <b>28,847.7</b> | <b>30,743.2</b> | <b>32,179.4</b> | <b>28,847.7</b>        |
| <b>Income</b>                   |                 |                 |                 |                        |
| Contributions                   |                 |                 |                 |                        |
| ➤ Employer                      | 1,733.6         | 1,494.7         | 6,144.9         | 9,373.2                |
| ➤ Salary sacrifice              | 307.0           | 312.4           | 317.2           | 936.6                  |
| ➤ Employee                      | 233.1           | 210.0           | 186.3           | 629.4                  |
| Investment income               | 3,168.0         | 3,011.2         | 48.4            | 6,227.6                |
| Miscellaneous                   | 2.8             | 2.0             | 5.0             | 9.8                    |
| Net Transfers                   | -0.3            | 2.3             | 1.1             | 3.1                    |
| <b>Total income</b>             | <b>5,444.20</b> | <b>5,032.60</b> | <b>6,702.90</b> | <b>17,179.7</b>        |
| <b>Expenditure</b>              |                 |                 |                 |                        |
| Total benefits                  | 3,258.2         | 3,384.1         | 3,689.2         | 10,331.5               |
| Expenses of management          | 33.1            | 32.6            | 35.3            | 101.0                  |
| Investment Expenses             | 90.4            | 86.4            | 85.8            | 262.6                  |
| Tax                             | 174.0           | 99.2            | 727.0           | 1,000.2                |
| Superannuation                  |                 |                 |                 |                        |
| Contributions Surcharge         | -7.0            | -5.9            | -6.9            | -19.8                  |
| <b>Total expenditure</b>        | <b>3,548.7</b>  | <b>3,596.40</b> | <b>4,530.40</b> | <b>11,675.5</b>        |
| <b>Reserves at 30 June</b>      | <b>30,743.2</b> | <b>32,179.4</b> | <b>34,351.9</b> | <b>34,351.9</b>        |

- 3.6.2 During the three year period to the 30 June 2012 the Pooled Fund earned investment revenue of \$6,227.6 million.

|              | <b>Income<br/>\$m</b> | <b>Changes in<br/>Market Value<br/>\$m</b> | <b>Total Investment<br/>Revenue<br/>\$m</b> |
|--------------|-----------------------|--|---|
| 2010         | 1,231.2               | 1,936.8                                    | 3,168.0                                     |
| 2011         | 1,231.1               | 1,780.1                                    | 3,011.2                                     |
| 2012         | 1,288.6               | -1,240.2                                   | 48.4  |
| <b>TOTAL</b> | <b>3,750.9</b>        | <b>2,476.7</b>                             | <b>6,227.6</b>                              |

- 3.6.3 After the deduction of investment-related expenses, and after taking into account investment income tax, the net rates of return in the Growth portfolio are as follows:

| <b>Financial Year</b> | <b>Net Investment<br/>Return<br/>% per annum</b> | <b>Investment<br/>Return net of<br/>increase in CPI<br/>% per annum</b> | <b>Investment<br/>Return net of<br/>increase in NSW<br/>AWOTE<br/>% per annum</b> |
|-----------------------|--|---|---|
| 1.7.2009 to 30.6.2010 | 9.2%   | 6.1%  | 4.1%  |
| 1.7.2010 to 30.6.2011 | 8.7%   | 5.1%  | 4.5%  |
| 1.7.2011 to 30.6.2012 | 0.4%   | -0.9%   | -2.1%   |

Note that the above "Net Investment Return" is the rate of return credited to contributors' accounts. Some employer reserves achieve a higher return because of the tax exemption associated with Current Pension Liabilities.

The compound average return over the period was 6.0% per annum. By way of comparison, the compound average return over the three-year period of the previous actuarial investigation was -1.5% per annum.

By way of further comparison, the median rate of return for the three years ended 30 June 2012 of investment managers included in the Mercer Employer Super Multi-Sector Balanced Growth Survey was 6.1% per annum.

## 3.7 Opinion

- 3.7.1 Crediting Policy  
The crediting rate process has three steps:

### Daily Crediting Rates

The process of determining daily involves the Fund administrator receiving investment reports from the custodian setting out net of tax earning rate and applying this rate to Scheme exits that occur intra month.

### Monthly Crediting Rates

The process of determining daily and monthly crediting rates involves the Fund administrator receiving investment reports from the custodian setting out net of tax monthly investment income. The Fund administrator then makes further tax and fee adjustments to this monthly income and then determines the net monthly crediting rates as the ratio of adjusted monthly income to the sum of accounts at the start of the month.

### Annual Crediting Rates

The annual crediting rate is the compounded monthly crediting rate of the relevant year.

In addition the tax benefits derived from the Current Pension Liability Exemption are credited to employers.

No investment reserves are held – that is, the crediting rate is the actual rate of investment return, with no smoothing.

The Trustee has developed a comprehensive documentation of the Crediting Rate Policy. We consider the Trustee's crediting rate policy to be suitable.

We are aware that this approach is currently under review. We will review the revised framework when full documentation is available.

#### 3.7.2 Suitability of the investment policy

The liabilities of the Pooled Fund are long term in nature, and increase in line with increases in CPI and general salary inflation. The majority of the liabilities are funded by a AAA rated sovereign entity. The strategic asset allocation of 54.0% liquid growth 30.5% alternatives and 15.5% liquid defensive is a reasonable investment strategy in these circumstances. This strategy should provide high returns in the long term, with protection against down side volatility. The strategy is consistent with the conclusions reached in the comprehensive asset / liability investigation carried out in April 2010.

In theory, alternative asset allocations may be more suitable for employers not backed by the NSW government. However the cost of changing these asset allocations may outweigh the benefits.

# 4

## Financial Structure of each Scheme

*Each of the Schemes form part of the Pooled Fund and the Trustee has administered the State Authorities Superannuation Scheme, the State Authorities Non-Contributory Superannuation Scheme, the State Superannuation Scheme and the Police Superannuation Scheme as one fund.*

*Each of the Schemes has their own structure and this is described below.*

### 4.1 SASS

4.1.1 For the purpose of the actuarial investigation, SASS has six separate sub-divisions, with each employer group (employers under each of Parts 1 and 3) having three divisions:

- Contributors' Reserves
- Employers' Reserves
- Deferred Reserves

The assets of a Part are available only to pay benefits in respect of members of that Part; and in the case of employers in Part 1, the assets are similarly segregated at an employer level. (This segregation is carried out in the accounts, not by way of separation of physical assets).

#### 4.1.2 Contributors' Reserves

All the Contributors' Reserves operate in a similar manner to a personal bank account. In effect, an account is maintained for each contributor of the Scheme. In each superannuation year, the account is credited with the opening balance of the account, and monthly thereafter with contributions made by the contributor and interest for the Scheme's investment earnings. The account is debited with charges in respect of expenses of management and, for those contributors who are covered for additional benefits, charges in respect of those additional death and disability benefits. In the case of salary sacrifice contributions, tax is also deducted.

Whatever the cause of exit, a benefit is payable to a contributor who leaves the Scheme equal to the full amount in his/her Contributor's Reserve account. Moreover, in the event of the death or total and permanent disablement of a contributor covered for "additional benefits" as defined in Volume II, an additional amount is paid from the Contributors' Reserve account. Details of these benefits are set out in Volume II.

Within the Contributors' Reserve, a death and invalidity reserve is established. This reserve is financed by deductions from contributors' contributions. Any employee-financed additional benefits which become payable on death or disablement are paid out of the reserve. The deductions from contributors' contributions are determined by multiplying the additional benefit for each contributor by a death and disability charge that varies according to age and sex. The adequacy of these death and disability charges is not within the scope of this investigation. However we note that the reserve has recently suffered severe adverse experience in respect of Police membership and subsidies have been required to maintain a positive balance. The reserve is under ongoing review in order to achieve a sustainable financial position.

### 4.1.3 Employers' Reserves

The Employers' Reserves exist to provide benefits to former contributors in respect of contributions made by employers. However, the funding strategy of each Employers' Reserve is different.

#### *Part 1 Employers*

A schedule of Part 1 employers is set out in Section 6.1 of Volume II.

The current arrangements applying to all Part 1 employers are as follows:

- (a) Each employer has an employer reserve account which is credited with contributions by employers at a multiple of contributors' contributions, increased by investment earnings and debited with benefit payments, tax and management costs;
- (b) Each year, each employer is advised the amount of its unfunded past service liability, being the difference between the total accrued superannuation liability determined in accordance with Accounting Standard AASB 119 (ie the present value of benefits payable in respect of completed service) and the balance in the employer reserve;
- (c) From time to time employers are advised the contributions required to fund the liabilities that accrue each year. For Part 1 Budget Sector employers this is currently advised as 1.9 times contributors' contributions.

However, this multiple is "notional" in that Budget Sector agencies use it to calculate their superannuation expense for reporting purposes only. The Crown in line with a long-term funding plan makes actual employer contributions on their behalf. This plan aims to extinguish Budget Sector unfunded liabilities by 2030, as consistent with the provisions of the Fiscal Responsibility Act 2005.

- (d) Part 1 Non-Budget Sector employers are required to fund their current service liabilities by contributing at a rate advised by the Trustee after receiving Treasury approval. Additionally they are required to fund their unfunded past service liability by 2030.

As a result of the current funding arrangements the employer contribution ratios (expressed as "billing multiples") cover a wide range, currently up to 3.8 times contributors' contributions.

Most of the employer-financed benefits are defined in terms of the contributor's salary at or before date of exit. Because experience will diverge from time to time from assumptions made in relation to salaries and other factors affecting benefits and the build-up of the fund, it is not possible to be certain of the contributions that should be paid to secure these benefits.

The investigation is to be carried out on an individual employer basis. The purposes of the triennial actuarial investigations in respect of Part 1 are:



- (i) to assess the suitability of the actuarial assumptions. This assessment is only done every three years as annual assessments cannot be done due to tight time constraints;
- (ii) to calculate the unfunded past service liability as at the valuation date;
- (iii) to investigate the funding status of the major employer groupings: the General Government Sector, Universities and PTEs and other employers;
- (iv) to make contribution recommendations in respect of the employers;
- (v) to provide information in respect of the financial strength and future funding commitments of the employer reserves.

### *Part 3 employers*

A schedule of Part 3 employers is set out in Section 6.2 of Volume II.

The Employers' Reserve in respect of employers under Part 3 is intended to fully provide the employer-financed benefits to former contributors of these employers. The reserve is credited in each case with contributions by employers according to the Act, increased by investment earnings and debited with benefit payments and management costs.

The Act specifies that the employers should contribute 1.0 times contributors' contributions (or such higher number as may be prescribed with the concurrence of the Treasurer).

Most of the employer-financed benefits are defined in terms of the contributor's salary at or before date of exit. For the reasons mentioned above, it is not possible to be certain of the contributions that should be paid to secure these benefits.

The purpose of this investigation in respect of the Employers' Reserve is to assess or estimate the extent to which the current contribution levels, together with the amount held in the reserve at the investigation date, are sufficient to finance the defined benefits and to recommend alterations in the prescribed rate if required.

#### **4.1.4 Deferred Reserves**

When a member leaves SASS before a 'condition of release' is satisfied, and elects to receive a deferred benefit (rather than taking the benefit in cash) an account is set up in the member's name in the deferred reserve.

This account is credited with investment return and debited with expenses.

If the member decides to receive the benefit before attaining a condition of release, then the accumulated cash resignation benefit is payable with the difference between the deferred account balance and the benefit payable transferred back to the Employer Reserve.

#### **4.1.5 Unfunded Superannuation Liabilities**

Calculations in respect of the unfunded superannuation liabilities of employers under Part 1 are required annually for inclusion in the financial statements of statutory bodies.

Under AEIFRS, the calculations must be carried out in accordance with AASB 119. The methodology and assumptions of AASB 119 differ from those adopted for the purposes of this investigation.

## 4.2 SANCS

4.2.1 For the purposes of the actuarial investigation SANCS has four separate sub-divisions, with each employer group (employers under each of Parts 1 and 3) having two divisions:

- Employers' Reserves
- Deferred Reserves

Within Part 1, the employer reserve is maintained at an individual employer level.

### 4.2.2 Part 1 Employers

The current arrangements applying to all Part 1 employers are as follows:

- (i) Each employer has an employer reserve account which is credited with contributions by the employer at a percentage of members' salaries, increased by investment earnings and debited with benefit payments, tax and management costs;
- (ii) Each year, each employer is advised the amount of its unfunded past service liability, being the difference between the total accrued superannuation liability (i.e. the present value of benefits payable in respect of service prior to the calculation date) and the balance in the employer reserve;
- (iii) Employers are advised of the contributions required to fund the liabilities accruing each year. This is generally advised as 2.5% of salaries, although pay-as-you-go employers (Consolidated Fund or supported Government employers) are only required to contribute at 0.5% of salaries.

However, this contribution rate is "notional" in that Budget Sector agencies use it to calculate their superannuation expense for reporting purposes only. The Crown in line with a long-term funding plan makes actual employer contributions on their behalf. This plan aims to extinguish Budget Sector unfunded liabilities by 2030, consistent with provisions of the Fiscal Responsibility Act 2005.

- (iv) Part 1 Non-Budget Sector employers are required to fund their current service liabilities by contributing at a rate advised by the Trustee. Additionally they are required to fund their unfunded past service liability by 2030.
- (v) With the concurrence of the Treasurer, the Trustee determines for each employer the percentage of members' salaries, which is to be its contribution rate for the following year. In setting this rate the Trustee has regard to the contributions advised as in (iii) and (iv) above.

Most of the employer-financed benefits are defined in terms of the contributor's salary at or before date of exit. Because experience will diverge from time to time from assumptions made in relation to salaries and other factors affecting benefits and the build-up of the fund, it is not possible to be certain of the contributions that should be paid to secure these benefits.

The purposes of regular actuarial investigations in respect of Part 1 are:

- (i) to assess the suitability of the actuarial assumptions,
- (ii) to calculate the unfunded past service liability as at the valuation date,
- (iii) to investigate the funding status of the major employer groupings: the General Government Sector, Universities and PTEs and other employers,
- (iv) to make contribution recommendations in respect of the employers;
- (v) to provide information in respect of the financial strength and future funding commitments of the employer reserves.

#### **4.2.3 Part 3 Employers**

The Employers' Reserves in respect of employers under Part 3 are intended to fully provide the Basic Benefits for employees of these employers. The Act specifies that the Trustee shall determine, with the concurrence of the Treasurer, the percentage contribution rate. This rate has been determined as 2.5% of members' salaries.

Benefits are defined in terms of the member's salary at or before the date of exit. Further, experience will diverge from time to time from assumptions made in relation to salaries and other factors. It is, therefore, not possible to be certain of the contributions that should be paid to secure these benefits.

The purpose of the actuarial investigation is to assess or estimate the extent to which the contribution rate prescribed in the legislation or determined by the Trustee, together with the amount held in the employer reserve at the investigation date, is sufficient to finance the benefits, and to recommend alterations in the prescribed or determined rate if required.

#### **4.2.4 Deferred Reserves**

When a member leaves SANCS before a 'condition of release' is satisfied, an account is set up in the member's name in the deferred reserve.

This account is credited with investment return and debited with expenses.

#### **4.2.5 Unfunded Superannuation Liabilities**

In the same manner as SASS, calculations in respect of the unfunded superannuation liabilities of employers under Part 1 are required annually for inclusion in the financial statements of statutory bodies.

### **4.3 SSS**

#### **4.3.1 SSS comprises two Reserves:**

- The Contributors' Reserve and
- The Employers' Reserve - which in turn comprises of a number of individual Employer Reserves.

#### 4.3.2 Contributors' Reserve

Since 30 June 1989 the Trustee has maintained a reserve called the Contributors' Reserve. It is credited with employee contributions, and interest at a rate determined by the Trustee. When a contributor ceases employment, an amount is transferred to the reserve account of the contributors' latest employer. For convenience, the event that initiates that action is referred to as "benefit emergence", although in the case of an election for a deferred benefit a benefit may not become payable for some time.

The amount payable from the Contributors' Reserve is the sum of the employee's contributions accumulated with interest at the rate of 3.5% per annum until 1 July 1972, and thereafter at rates fixed by the Trustee. That sum is referred to for convenience as the "Section 33B accumulation".

The amount payable from the Contributors' Reserve is further limited, namely to the value of the benefit. The value of pension or deferred benefits is determined by Pillar, using factors supplied by the Scheme Actuary. This limitation is not generally expected to apply.

The amount payable from the Contributors' Reserve is for convenience referred to as the "Section 33B transfer". In the case of resignations, it is paid directly to the beneficiary, and the balance of the lump sum, if any, is paid from the Employer Reserve from which the benefit is to be paid.

#### 4.3.3 Employer Reserves

The Administrator maintains for each employer a reserve, or a reserve for each cost centre within each employer. Each is credited with employer contributions, transfers from the Contributors' Reserve, and interest at a rate determined by the Trustee. It is debited with benefit payments, expenses and tax.

The amount of the contribution payable by each employer is currently a multiple (which may be less than one) of the contributions made by the employees. The Trustee, with the concurrence of the Treasurer, periodically fixes the multiple for each employer.

When a contributor exits from the Fund, an amount is transferred from the Contributors' Reserve as part of the benefit payable. If the benefit is a lump sum, the balance of the benefit is debited to the Employer Reserve. If the benefit is a pension, the money transferred from the Contributors' Reserve is placed in the Employer's Reserve and may remain there for some time before it is expended.

If an Employer Reserve becomes insufficient to meet benefit payments immediately due, the Trustee may require the employer to meet the necessary payment. In effect, the employer guarantees the benefit.

The Trustee may, with the concurrence of the Treasurer, adjust an Employer's Reserve whenever, through a change in circumstances, it appears appropriate to do so.

Treasurer's Direction 510.01 was introduced in January 1991. It refers to employers fully or partly Budget funded (in this context referred to as Consolidated fund employers) and now reads as follows:

GOVERNMENT SERVICES (fully budget funded) COMMERCIAL ACTIVITIES (off-budget agencies and activities belonging to Government Service Organisations) and SEMI-COMMERCIAL AUTHORITIES (partly subsidised by the budget).

Organisations in this category should:

1. Recognise all employee entitlements in the financial period in which they emerge.
2. Progressively seek to recover these from revenues
3. Not fund the liability unless otherwise directed by the Treasurer.

Treasurer's Direction 510.02 refers to Non Budget Sector employers, and now reads as follows:

COMMERCIAL AUTHORITIES (self funded Government trading enterprises, including State owned corporations).

Organisations in this category should:

1. Recognise all employee entitlements in the financial period in which they emerge
2. Fully fund superannuation entitlements
3. Meet other employee entitlements on a normal commercial basis from general operating cash flow (ie. no specific funding).

The Budget Papers state that Non-Budget Sector agencies are required to meet the full accrual cost of increases in superannuation liabilities and are required to fully fund past unfunded liabilities over a period of up to 30 years.

## 4.4 PSS

4.4.1 The PSS is split between the Contributor and Employer Reserves.

4.4.2 The Contributors Reserve operates in a similar way to the SSS Contributor Reserve, being credited with employee contributions and interest and debited at benefit emergence with the actual benefit payment or the transfer to employer reserve in the case of pension or deferred benefits.

4.4.3 The Employer Reserve is credited with employer contributions, transfers from the Contributors' Reserve, and interest at a rate determined by the Trustee. It is debited with benefit payments, expenses and tax. It behaves in the same way as the SSS employer reserve for a Budget-Sector employer, with the Consolidated Fund effectively covering the shortfall between benefits emerging and the total of Employer and Contributor reserves.

## 4.5 Ultimate Crown guarantee of benefits and legal status of employer reserves

4.5.1 At my request, the STC Executive obtained legal advice on the following questions:

- a) are the superannuation liabilities of all employers in the Pooled Fund covered by a guarantee of payment by the NSW Government?
- b) If the answer to the first question is no, which employers are not covered?
- c) If the sub-fund of an individual employer has no assets, may the Trustee continue to pay benefits to members of that sub-fund?

- d) If the sub-fund of an individual employer has no assets, must the Trustee continue to pay benefits to members of that sub-fund?

A summary of the legal advice obtained by the Trustee is as follows –

- a) PSS – covered  
 SSS – only in respect of privatised employers  
 SASS – only in respect of privatised employers and Part 3 (ie Public health organisations) employers  
 SANCS – only in respect of privatised employers and Part 3 employers.
- b) PSS – not applicable  
 SSS – no employers are covered except privatised employers  
 SASS – no employers are covered except privatised employers and Part 3 employers  
 SANCS – no employers are covered except privatised employers and Part 3 employers
- c) The Scheme Legislation does not empower the Trustee to continue to pay benefits (except for Part 3 employers)
- d) The Scheme Legislation does not empower the Trustee to continue to pay benefits (except for Part 3 employers).

## 4.6 Employer financed insurance

The Pooled Fund self insures in respect of death and disability benefits. That is, there is no external insurance of these benefits.

This self-insurance is appropriate for a number of reasons:

- (a) in a number of instances the definition of disability in the Scheme legislation is such that external insurers would not insure the risk (other than at a prohibitive price);
- (b) the size of the membership ensures relatively stable experience;
- (c) the main sponsoring employer is a AAA rated sovereign entity;
- (d) the smaller employers are protected by the pooling of death and disability experience amongst employers.

# 5

## Funding Valuation Process and Valuation Basis

*This section explains the assumptions used for each of the Schemes for valuing the liabilities for funding purposes. All of the assumptions are set out in detail in Volume II of this report.*

### 5.1 Purpose of the funding valuation

The purpose of the funding valuation is to assess the financial condition of the fund from the perspective of setting contribution rates. Funding is a dynamic exercise. The contribution rate can be determined initially, and then adjusted at annual or triennial intervals. As actual events unfold the employer contributions can be adjusted upwards or downwards. In the funding valuation, the employer covenant (ie the willingness of the employer sponsor to financially support the fund) is the risk reserve for adverse experience.

In this environment it is reasonable to use best estimates for the assumptions. In particular the rate of discount is set at the expected rate of investment return.

### 5.2 Valuation Process

5.2.1 The actuarial valuation process has a number of stages as follows:

#### Stage 1

Assumptions are made about the future, based on the past experience of superannuation funds generally and on the recent past experience of each Scheme. This aspect is discussed in the remaining paragraphs of this section and the complete basis is set out in Volume II.

#### Stage 2

Using these assumptions, the future money flow into and out of the Scheme year by year is calculated until the last of the contributors, deferreds and pensioners as at 30 June 2012 leaves the Scheme.

#### Stage 3

The cash flows are discounted to capital values at the valuation date.

### 5.2.2 Consistency of Assumptions across Schemes

The assumptions about rates of future investment return were set the same for all Schemes in the Pooled Fund as the same investment pool has been used and since the term of the outstanding liabilities is sufficiently similar. Similarly, assumptions about rates of inflation and long term rates of inflationary salary increases were set the same for all Schemes.

Other assumptions (mainly rates of decrement, rates of promotional salary increase and short term salary increase rates) have been set independently to reflect the underlying experience of the membership of each Scheme. However, we have ensured that all Schemes have been treated in a consistent manner.

## 5.3 Economic Assumptions

### 5.3.1 Background

In the actuarial basis used to value the Schemes' benefits the three economic assumptions are the rate of investment return, the rate of salary increase and the rate of inflation. The excess of the rate of investment return over the rate of inflation is more important than the absolute values of those two items; and this gap is the most significant element of the actuarial basis. In addition the rate of investment return less the rate of salary increase is very important.

As set out in Section 3, the compound average rate of return over the 3 year period to 30 June 2012 was 6.0% pa. Note that this return is after tax and after fees and does not include the tax credits in respect of the Current Pension Liability Exemption. The actual return of 6.0% pa compares with the assumed rate of 7.3% per annum for non pensioners.

Sources used in setting the assumptions include:

- NSW Treasury;
- Mercer Investment Consulting;
- Trends in Relative Consumer Price – Reserve Bank Bulletin;
- 2010 Intergenerational Report.

### 5.3.2 Rate of increase in the Consumer Price Index (CPI)

The rate of increase in the Consumer Price Index (CPI) assumption is 2.5% per annum. This rate was set based on the following considerations:

- The Reserve Bank target for CPI increase in 2% to 3% per annum. It is acknowledged that this is a long term target and that there will be periods when inflation is above or below these levels;
- The average CPI increase rate for the ten years to 30 June 2011 was 2.9% per annum;
- The long term level of inflation projected by the 2010 Intergenerational Report is 2.5% per annum.

### 5.3.3 Rate of general increase in salaries

The rate of general salary increase assumption of the previous investigation was 4.0% per annum.

Since the early 1990s wage inflation increases have ranged from 2% per annum to 6.8% per annum with an average of 3.7% per annum. The margin of Average Weekly Ordinary Time Earnings (AWOTE) over CPI has averaged 1.5% per annum over the past ten years.

Real wages growth (ie above price inflation) is expected to be in line with labour productivity growth. The 2010 Intergenerational Report assumes that long term growth will be 4.0% (with productivity growth in the order of 1.6% combined with long term price inflation of 2.5%).

There are a number of other factors that could also affect the level of future salary increases:



- (a) The *Industrial Relations (Public Sector Conditions of Employment) Regulation 2011* limits salary increases for NSW public sector employees to 2½% per annum, plus productivity gains;
- (b) Over the past six years, the rate of salary increase of members of the Scheme have been about ½% per annum higher than the rate of increase of the Australian work force generally. One would expect a “reversion to the mean” over time, suggesting lower salary increases than the population for members of the Scheme in the near future;
- (c) Global and Australian GDP growth are expected to be subdued in the near future and this should exert downward pressure on levels of salary increase.

Taking the above factors into account, the rates of general salary increase assumptions are:

|                     |   |
|---------------------|---|
| SASS, SANCS and SSS | 2.7% per annum for 6 years<br>and 4% per annum thereafter |
| PSS                 | 3.5% per annum for 6 years<br>and 4% per annum thereafter |

The reason for the different salary increase assumption for PSS compared to the other Schemes is that Police personnel are not subject to the *Industrial Relations (Public Sector Conditions of Employment) Regulation 2011*.

#### 5.3.4 Rate of investment return and rate of discount

The Strategic Asset Allocation of the Pooled Fund as at 30 June 2012 was set out in section 3.3.5 of this report.

Based on Mercer’s Investment Consulting sector returns, and assuming investment expenses of .27% of assets, the estimated return of the portfolio net of tax and fees is 7.6% per annum. For assets backing pension liabilities, this is equivalent to an investment return of 8.6% per annum.

This rate of 7.6% per annum applies to the steady state assumptions. If we take into account current conditions, and in particular that current fixed interest rates are quite low, then we can estimate returns over different periods:

|                | % per annum |
|----------------|-------------|
| 5-year return  | 7.2         |
| 10-year return | 7.3         |
| 15-year return | 7.4         |
| 20-year return | 7.4         |
| Steady state   | 7.6         |

On the basis of the above, the rates of investment return and discount assumptions for funding purposes were set at 7.3% per annum for assets not backing pension liabilities and 8.3% per annum for assets backing pension liabilities.

It must be borne in mind that there is considerable volatility from year to year in the rates of investment return actually experienced. Also, the Trustee's investment objective is CPI + 4.5% per annum compared with CPI + 4.8% per annum implied by the funding basis. Hence a valuation has also been carried out using the investment objective assumptions.

### 5.3.5 Summary

For all Schemes the key long term economic assumptions are as follows:

|   |  |
|---|--|
| Rate of investment return:                | 7.3% per annum (non pensioners)<br>8.3% per annum (pensioners) |
| Rate of general salary escalation:        | 4.0% per annum   |
| Rate of increase in consumer price index: | 2.5% per annum   |

Short term salary increase assumptions have been adopted for the 6 years following 30 June 2012:

|                     |                            |
|---------------------|----------------------------|
| SASS, SANCS and SSS | 2.7% per annum for 6 years |
| PSS                 | 3.5% per annum for 6 years |

### 5.3.6 Sensitivities - Economic

To provide an indication of the sensitivity of the valuation results to economic factors six further sets of calculations were carried out, being an increase of 1% per annum and a decrease of 1% per annum to the rate of investment return, the rate of salary increase and the rate of CPI increase.

| Sensitivity Study          | Economic Basis   |
|----------------------------|--|
| Investment Return plus 1%  | Standard basis but with investment return increased by 1%    |
| Investment Return minus 1% | Standard basis but with investment return decreased by 1%    |
| Salary plus 1%             | Standard basis but with salary increase rate increased by 1% |
| Salary minus 1%            | Standard basis but with salary increase rate decreased by 1% |
| CPI plus 1%                | Standard basis but with CPI increase rate increased by 1%    |
| CPI minus 1%               | Standard basis but with CPI increase rate decreased by 1%    |

The results of applying these sensitivities are set out in Section 1.2.4.

### 5.3.7 Administration Expenses

In the previous valuation the levels of administration expenses assumed for each Scheme were as follows:

|              |   |
|--------------|---|
| <b>SASS</b>  | 1.0% of employee contributions (assumed deducted from member accounts) plus 1.0% of benefit payments. |
| <b>SANCS</b> | 1.0% of benefit payments.   |
| <b>SSS</b>   | 1.0% of employee contributions (not deducted from member reserves) plus 1.0% of benefit payments.     |
| <b>PSS</b>   | 1.0% of benefit payments  |

The total expenses over the three years for each of the Schemes participating in the Pooled Fund are as follows:

| Three years to 30 June 2012           | Total Pooled Fund \$m |
|---------------------------------------|-----------------------|
| Actual expenses                       | 101.0                 |
| 2009 actuarial basis expense estimate | 117.1                 |

Actual expenses were 0.98% of benefit payments over the three year period to 30 June 2012. If it is assumed that SASS contributors continue to have an expense charge deducted from contributions, and a small component of the employer expense cost in respect of SSS and PSS is related to member contributions actual non-contribution related expenses were 0.86% of benefit payments.

The administration expenses assumptions are the same as for the 2009 valuation.

### 5.3.8 Tax

Contributions tax is assumed to continue at 15% of employer contributions net of expenses and notional death and disability premiums.

## 5.4 Demographic Assumptions

5.4.1 A detailed analysis of the experience of the Schemes during the three year period to 30 June 2011 has been carried out to compare the experience with the assumptions made at the previous investigation. In addition comparisons were made for some elements of the basis with the analysis of the experience of the period 1 July 2005 to 30 June 2008.

Rates of exit vary by age and sex as is to be expected. For some types of exit, rates also vary by occupation group. SASS Part 3 forms a different occupation group to Part 1 and experiences different resignation and retirement rates. Rates of early retirement and rates of commutation also vary between Schemes. Members tend to optimise their own benefits.

We have formulated assumptions based on the experience of each of the Schemes. In setting these rates we have adopted realistic rates rather than retaining any margins for conservatism.

The following sections describe how the valuation basis was determined. Volume II contains a detailed specification of the basis.

## 5.5 Contributor Assumptions

### 5.5.1 Rates of salary increase

The future rates of salary increase assumed comprise two elements:

1. An underlying rate of increase in respect of inflation and general productivity increases. This is dealt with under economic assumptions; and
2. An age-specific promotional increase scale.

Based on the experience in the three years to 30 June 2011 there was no significant difference in promotional rates of salary increase between Schemes, except in the case

of PSS; nor was there any significant difference between males and females. The promotional scales adopted are the same as used in the 2009 valuation.

### 5.5.2 Rates of resignation and deferral

Complete sets of rates of resignations and deferral are included in Volume II. There were no changes from the previous investigation.

### 5.5.3 Rates of mortality for contributors

The rates experienced were quite close to those assumed.

The rates used are as follows:

|                                    |   |
|------------------------------------|---|
| <b>SASS,<br/>SANCS<br/>and SSS</b> | ➤ Rates equal to 35% of the rates in the Australian Life Tables 2005-07 (adjusted for improvements in mortality to 2012)  |
| <b>PSS</b>                         | ➤ Slightly higher overall mortality rates are assumed as a “killed on duty” decrement is added to the standard rates. The killed on duty rates are unchanged from the previous investigation. |

### 5.5.4 Rates of disablement for contributors

The disablement experience of for most groups of membership was reasonably close to expected. However, the experience in respect of Police membership led to some changes in rates assumed for Police membership of SASS (and SANCS) and hurt on duty rates in PSS.

The rates of disability assumed at this valuation are as follows:

|              |   |
|--------------|---|
| <b>SASS</b>  | ➤ As for 2009 for non-Police membership.<br>➤ Police membership rates are equal to the total disability rates for PSS (hurt on duty plus not hurt on duty). |
| <b>SANCS</b> | ➤ Rates assumed at SASS combined TPI + PPI rates  |
| <b>SSS</b>   | ➤ Rates unchanged from 2009.  |
| <b>PSS</b>   | ➤ Not hurt on duty disablements rates as for 2009;<br>➤ Hurt on duty rates assumed are 20% lower than 2009 rates.   |

### 5.5.5 Rates of retirement

The rates were fine-tuned to reflect the experience:

|              |  |
|--------------|--|
| <b>SASS</b>  | ➤ All rates have been adjusted reflecting the trend to later retirement.   |
| <b>SANCS</b> | ➤ Rates assumed are the same as for SASS.  |
| <b>SSS</b>   | ➤ Male rates and rates for females retiring at age 60 have been reduced; rates for females retiring at age 55 increased. |
| <b>PSS</b>   | ➤ Rates have been adjusted at all ages to correspond with the experience.  |

No allowance has been made for late retirements in PSS. Late retirement rates are adopted for SSS to age 65 and for SASS and SANCS to age 70.

### 5.5.6 Rates of redundancy

Actual levels of redundancy were quite low, but the assumptions at the previous level have been retained for the longer term. That is, for SASS Part 1 only, 1.5% of members per annum are assumed to be made redundant. No allowance in other groups has been made.

The NSW government has foreshadowed a number of retrenchments in the public sector in the immediate future. We have adopted assumptions for the years 2012/13, 2013/14, 2014/15 and 2015/16 in respect of certain employers (general government sector excluding police) as specified by NSW Treasury. These are the same rates as adopted in the most recent Crown Financial Statements.

### **5.5.7 Future member contribution rates**

In the period since 30 June 2009 about 90% of members did not reduce their contribution on attaining maximum points. However, about 9% of those members who had already attained maximum points at 30 June 2009 and had not already reduced their contribution to 1% have reduced their contribution in the period since 30 June 2009. Accordingly for this valuation we have assumed that 20% of members reduce their contribution to 1% on attaining maximum points and the remainder maintain their current contribution to retirement. This is the same proportion assumed for the 2009 valuation.

Rates of taking up optional units in SSS have been retained at the levels assumed for the previous investigation as these rates appear to be broadly in line with experience. (Optional units are those units for which contributions in excess of 6% salary are required.)

### **5.5.8 Distribution of new entrants**

The Scheme is closed to new entrants and a distribution of new entrants is only used to derive theoretical contribution rates. The distribution used is the same as used for previous investigations.

## **5.6 Pensioner Assumptions**

### **5.6.1 Pensioner mortality**

The basis adopted is quite close to that adopted for the 2009 valuation. The basis for SSS pensioners has been adjusted to relate directly to the standard Mercer0509 experience for Public Sector Pensioners.

No changes were made for SASS base rates (other than improvements already assumed from 2009). Rates the same as for SSS are assumed for PSS normal and spouse pensioners.

The experience showed a continuing trend of improvement in mortality and this has been reflected by the adoption of improvements at the ALT average 25 year improvement rates until 2018 and at average 100 year rates thereafter in the mortality rates for all pensioners.

|             |  |
|-------------|--|
| <b>SASS</b> | ➤ As for the previous valuation, a proportion of the rates in the Australian Life Tables 2000-02 (including improvements to the relevant year). The same rates are used for the relatively few disability pensioners.  |
| <b>SSS</b>  | ➤ Rates for male retirement pensioners range from 85% of Mercer0509 rates for ages under 70, 75% for ages 70 to 80 and increasing to 100% by age 95. For females, the proportions are slightly lower. Rates for disability pensioners are similarly benchmarked against Mercer0509 rates. For later year invalidity pensioners the proportions range from 3 times at age 55 to 1 times at age 90. The rates are fairly close to the 2009 basis when adjusted for improvements.                         |
| <b>PSS</b>  | ➤ For retirement and spouse pensioners the same rates as for SSS are adopted. For disability pensioners the rates adopted are 100% of the SSS ill-health pensioner rates for ages up to 70, reducing to 67.6% from age 80 (but always limited to the normal retirement rate). For the rates for hurt on duty pensioners the proportion varies from 40% at ages up to 50 to 100% at ages 60-70 reducing to the not hurt on duty rate from age 80.<br>➤ SSS rates are adopted for all female pensioners. |

### 5.6.2 Pensioner mortality sensitivities

The mortality of pensioners was altered to provide an indication of the sensitivity of the valuation results to changes in longevity: Two further sets of calculations were carried out, varying the rates of assumed improvements in pensioner mortality to give higher and lower resultant mortality than the basis adopted.

| Sensitivity Study          | Mortality Alteration   |
|----------------------------|--|
| Pensioner mortality higher | Decreasing the rate of mortality improvement by applying the 100 year mortality improvement trend from the <i>Australian Life Tables 2005-07</i> from 1 July 2011, rather than applying the 25 year trend (faster) for seven years and the 100 year mortality trend (slower) thereafter. |
| Pensioner mortality lower  | Increasing the rates of mortality improvement by extending the application of the 25 year mortality trend (faster) to cover the period 1 July 2011 to 30 June 2021 (10 years), rather than over seven years. The 100 year mortality improvement trend (slower) is applied thereafter.    |

### 5.6.3 Proportion of members taking pension benefits & the proportion with spouse and dependants

The proportion of members electing to take lump sums over pension benefits when an election is available has reduced in all Schemes over the 3 year period. The assumed proportions commuting pensions (or taking lump sums) have been reduced for all Schemes for most types of pension.

For SASS, the proportion of members electing pension benefit of those eligible has been increased from 20% to 28%.

Commutation assumed for SSS has been reduced from 10% to 5% for retiring members with corresponding reductions for other types of pension.

For PSS, the proportion of retiring members electing pension benefit of those eligible has been increased from 50% to 55%. The proportion of disability pensions assumed to be commuted on attainment of age 60 is 5% (previously 30%).

Assumptions as to proportions of contributors and pensioners married and the number and ages of children have been retained from the previous valuation for all but SSS retirement pensioners.

Proportions of pensioners with eligible spouse surviving at death in SSS have been adjusted to reflect experience. Proportions married for males were increased by about 15% for retirement pensioners and by about 20% for breakdown pensioners for ages over 60. For females the proportions were increased by about 20% for retirement pensioners under age 80 and more than doubled for older ages. Female proportions for breakdown pensioners were increased by 50% for ages over 65.

The age difference between pensioner and spouse for SSS males was increased to 4 years older than spouse. Age differences for SASS pensioners were altered to the same as the SSS age differences.

## 5.7 Assets and Funding Indices

### 5.7.1 Valuation of assets

Accounting standards that govern the financial statements of superannuation funds in Australia require that assets be recorded at net market value; that is the market value of the asset at the valuation date less any costs of realisation.

For the purposes of the actuarial valuation it is essential that the assets and liabilities are valued on a consistent basis. Hence on the funding basis the liabilities have been valued at market rates of investment return to match the market value approach of the assets.

### 5.7.2 Funding indices

Three indices in respect of employer reserves have been calculated whose progress from investigation to investigation provides an indication of comparative financial strength.

The indices calculated are:

**Vested benefits index:** the ratio of assets to vested benefits where a member's vested benefit is the amount he/she is entitled to as a cash benefit from the Scheme if he/she voluntarily leaves an employer at the investigation date.

**Deferred benefits index:** the ratio of assets to deferred benefits where a member's deferred benefit is the amount he/she is entitled to preserve in the Scheme if he/she voluntarily leaves an employer at the investigation date.

**Accrued benefits index:** the ratio of assets to accrued benefits where a member's accrued benefits are based on his/her service and contributions to the investigation date and on estimated final average salary.

In respect of pensioners and deferred defined benefit members, the vested benefits, deferred benefits and accrued benefits are equal to the full value of the liability for the members.

## 6

## Results of Valuation of Pooled Fund by Scheme

*This section sets out the results of the valuation for each of the Schemes forming the Pooled Fund. Each section details the unfunded liability for the Scheme or Scheme sub-division and the theoretical contribution rate required to cover the outstanding liability. The allocation of assets between Schemes is based on information provided by the Fund's administrator, and further detail is provided in Section 3 of Volume II.*

### 6.1 SASS

#### 6.1.1 SASS Employers Reserve Unfunded Liability

Unfunded liability is defined as the value of accrued benefits less available reserves. The unfunded liability in the Employer's reserve for accrued benefits is set out below.

| <b>SASS Employers Reserve</b>  |            |            |
|--|------------|------------|
|  | <b>\$m</b> | <b>\$m</b> |
| Present value of benefits (fully accrued) payable to existing pensioners                                       |            |            |
| • Pensions in course of payment  | 592.0      |            |
| • Reversionary pensions  | 67.3       |            |
|  |            | 659.3      |
| <b>Plus</b>  |            |            |
| Present value of benefits payable in future to contributors in respect of service prior to the valuation date: |            |            |
| • Male contributors  | 3,791.2    |            |
| • Female contributors  | 3,034.0    |            |
|  |            | 6,825.3    |
| <b>Plus</b>  |            |            |
| Present value of administration expenses in respect of accrued benefits  |            | 74.8       |
| <b>Less</b>  |            |            |
| Amount of fund   |            | 4,550.2    |
| <b>Gives</b>   |            |            |
| Unfunded past service liability  |            | 3,009.3    |

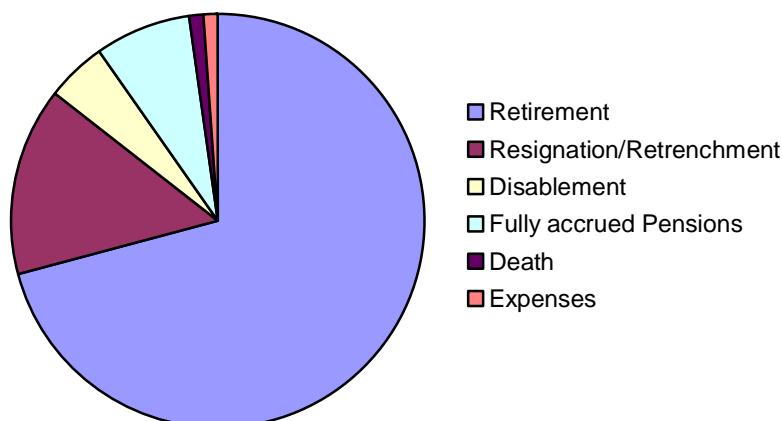
This balance sheet is an aggregate for all SASS employers and includes both Part 1 and Part 3 employers.

If the valuation assumptions of the 2009 investigation had been retained, then the unfunded liability would have been \$3,196.2 million rather than \$3,009.3 million.

The pie chart below shows the allocation, on the valuation assumptions, of the total employer liability between current pensioners and members resigning in future, retiring, becoming disabled or dying, as well as expenses of management.



### Allocation of Total Employer Liability



#### 6.1.2 Employers Reserve Financial Progress

The SASS investigation as at 30 June 2009 revealed an unfunded past service liability in the Employers' Reserve of \$4,020.1 million, whereas this investigation has shown an unfunded liability of \$3,009.3 million as at 30 June 2012. The method used to analyse the change in unfunded liability is to assess the effect of differences between the assumptions made at the previous valuation and the actual experience of the inter-investigation period. The major effects on the unfunded past service liability have been:

- Rates of investment earnings were lower than expected, increasing the deficiency;
- Rates of salary increase were higher than expected, increasing the deficiency;
- CPI increases on pensions in payment were higher than expected, increasing the deficiency;
- In respect of exits later retirements and fewer exits overall gave rise to a surplus;
- Contributions paid were higher than the increment in past service liability due to service over the 3 years. This is the effect of current funding of past service deficiencies;
- Some cross-transfers between schemes were made within individual employers' reserves, reducing the deficiency in respect of SASS;
- Following analysis of the experience, the valuation basis was altered, resulting in a decrease in the current liability.

Set out below is a summary of the progress of the unfunded liability, showing the estimated financial effect of the major items:

| <b>SASS Employers Reserve</b>                                     |            |
|---|------------|
| <b>Item</b>   | <b>\$m</b> |
| Unfunded past service liability as at 30 June 2009                | 4,020.1    |
| plus interest to 30 June 2012 at valuation rate                   | 946.2      |
| Deficiency due to lower than expected investment earnings         | 245.8      |
| Deficiency due to higher than expected salary increases           | 24.8       |
| Deficiency due to higher than expected CPI increases              | 3.4        |
| Exits - surplus due to late retirements & fewer exits             | -62.8      |
| Excess of contributions above accrual                             | -1,813.1   |
| Additional contributions due to reallocation of employer reserves | -163.3     |
| Change in valuation basis at 30 June 2012                         | -186.9     |
| Other sources and rounding  | -4.9       |
| Unfunded liability at 30 June 2012                                | 3,009.3    |

### 6.1.3 Total employers liabilities including benefits and contributions in respect of future service

The valuation balance sheet as at 30 June 2012 for the SASS Employers reserve is set out below, taking into account total service benefits as well as expected future contributions, expenses and taxes.

| <b>SASS Employers Reserve</b>  |            |            |
|--|------------|------------|
|  | <b>\$m</b> | <b>\$m</b> |
| Present value of benefits (fully accrued) payable to existing pensioners   |            |            |
| • pensions in course of payment  | 592.0      |            |
| • reversionary pensions  | 67.3       |            |
|  |            | 659.3      |
| <b>Plus</b>  |            |            |
| Present value of benefits payable in future to current contributors in respect of service prior to the valuation date: |            |            |
| • male contributors  | 3,791.2    |            |
| • female contributors  | 3,034.0    | 6,825.3    |
| Present value of benefits payable in future to current contributors in respect of future service:                      |            |            |
| • male contributors  | 622.4      |            |
| • female contributors  | 710.2      | 1,332.6    |
| <b>Plus</b>  |            |            |
| Present value of future expenses of management   |            | 88.2       |
| <b>Less</b>  |            |            |
| Amount of fund   |            | 4,550.2    |
| <b>Gives</b>   |            |            |
| Amount to be funded by employer contributions  |            | 4,355.2    |

#### 6.1.4 SASS Employers – Theoretical Contribution Rate

If the Part 1 employers and Part 3 employers each taken as a whole had always contributed to employer reserves on a basis to fully fund benefits over the full service of members, the theoretical ratios of employer to contributor contributions, based on the age and sex distribution of entrants for each Part and the long term assumptions (ie no short term salary increase assumptions or short term redundancy), would be:

|                  | Part 1 | Part 3 |
|------------------|--------|--------|
| Males            | 1.68   | 1.65   |
| Females          | 1.76   | 1.58   |
| All contributors | 1.71   | 1.59   |

The reduction in the ratio from the 1.73 and 1.64 for Parts 1 and 3 respectively calculated at the previous investigation reflects the later retirement rates adopted at this investigation.

Contributions expected to be required for individual employer groups to fully fund contributors in force (ie taking into account past service deficiencies) as at 30 June 2012 are provided in Volume II.

#### 6.1.5 SASS Employers Reserve – Indices and Financial Strength

##### *Vested Benefits*

The sum of vested benefits (as defined in Section 5 above) for SASS members in the Employers Reserve amounted to \$5,017.8 million as at 30 June 2012. Assets available to cover employer liabilities are \$4,550.2 million. Therefore the ratio of assets to vested benefits is \$4,550.2 million/\$5,017.8 million, ie 90.7%.

The progress of this index over recent investigations has been:

|              |      |
|--------------|------|
| 30 June 2003 | 0.68 |
| 30 June 2006 | 0.94 |
| 30 June 2009 | 0.72 |
| 30 June 2012 | 0.91 |

##### *Deferred Benefits*

The sum of deferred benefits (as defined in Section 5 above) for SASS members in the Employers Reserve amounted to \$9,007.1 million as at 30 June 2012. Therefore the ratio of assets to deferred benefits is \$4,550.2 million/\$9,007.1 million, ie 50.5%.

The progress of this index over recent investigations has been:

|              |      |
|--------------|------|
| 30 June 2003 | 0.24 |
| 30 June 2006 | 0.42 |
| 30 June 2009 | 0.35 |
| 30 June 2012 | 0.51 |

*Accrued Benefits*

The sum of the accrued benefits (as defined in Section 5 above) for SASS members amounted to \$9,422.1 million as at 30 June 2012. Therefore the ratio of assets to accrued benefits is \$4,550.2 million/\$9,422.1 million, ie 48.3%.

The progress of this index over successive investigations has been:

|              |      |
|--------------|------|
| 30 June 2003 | 0.29 |
| 30 June 2006 | 0.46 |
| 30 June 2009 | 0.33 |
| 30 June 2012 | 0.48 |

**6.1.6 Sensitivity Tests – SASS Employer Reserves**

In order to test the sensitivity of the results of the valuation to the economic assumptions made, the effect on the unfunded liability of varying each factor by plus or minus 1% was calculated. The alternative bases used were:

- Earned interest rate +1% (long term rate 8.3/9.3%p.a.)
- Earned interest rate -1% (long term rate 6.3/7.3%p.a.)
- Inflationary salary increases +% (long term rate 5%)
- Inflationary salary increases -1% (long term rate 3%)
- CPI increases +1% (long term rate 3.5%)
- CPI increases -1% (long term rate 1.5%)

In addition the sensitivity of the results of the valuation to the assumptions made in respect of pensioner mortality was analysed by comparing the results under higher and lower mortality rates for pensioners.

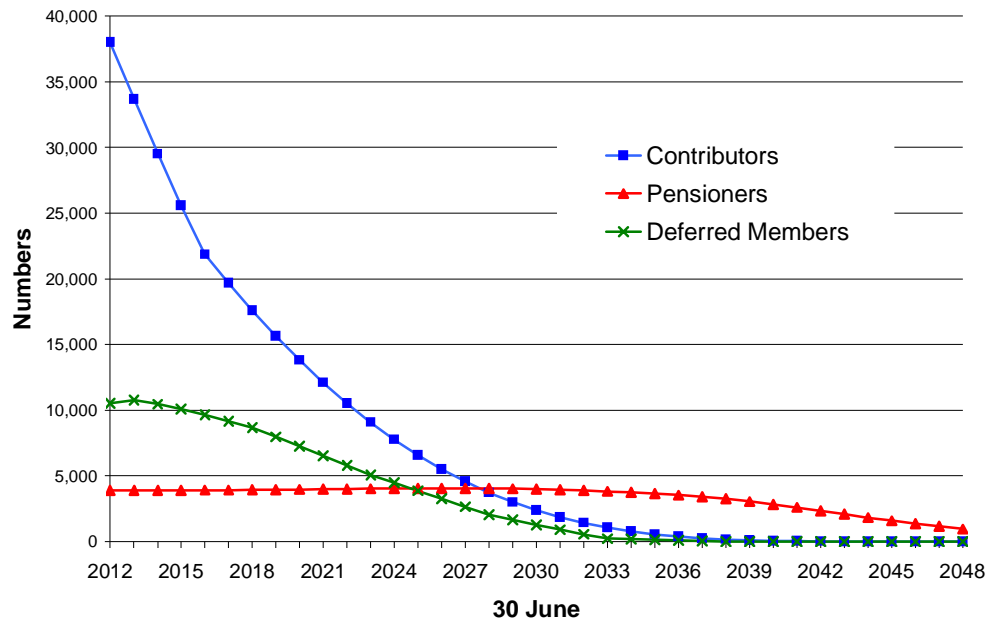
The table below shows the unfunded liability in the Employers' Reserve under SASS as at 30 June 2012 under each of the above assumptions.

| Assumptions                |                     | Employer Unfunded Liability<br>\$m |
|----------------------------|---------------------|------------------------------------|
| Valuation basis            |                     | 3,009.3                            |
| a)                         | +1% interest        | 2,551.5                            |
| b)                         | -1% interest        | 3,532.6                            |
| c)                         | +1% salary increase | 3,404.0                            |
| d)                         | -1% salary increase | 2,649.2                            |
| e)                         | +1% CPI increase    | 3,137.8                            |
| f)                         | -1% CPI increase    | 2,898.8                            |
| Pensioner mortality higher |                     | 3,003.6                            |
| Pensioner mortality lower  |                     | 3,021.4                            |

## 6.2 Projections - SASS Scheme

The numbers of contributors, deferred benefit members and pensioners have been projected to 2048.

### Total SASS Scheme - Projected Numbers of Contributors, Deferred Benefit Members and Pensioners



## 6.3 SANCS - Employers Reserves

### 6.3.1 SANCS Employers Reserves – Unfunded Liability

The unfunded past service liability for SANCS is set out below.

| SANCS Employers Reserve  |         |         |
|--|---------|---------|
|  | \$m     | \$m     |
| Present value of benefits payable in future to contributors in respect of service prior to the valuation date <sup>1</sup> : |         |         |
| • Male contributors  | 1,268.4 |         |
| • Female contributors  | 912.3   |         |
|  |         | 2,180.7 |
| <b>Plus</b>  |         |         |
| Present value of administration expenses in respect of accrued benefits  |         | 21.8    |
| <b>Less</b>  |         |         |
| Amount of fund   |         | 1,373.3 |
| <b>Gives</b>   |         |         |
| Unfunded past service liability  |         | 829.2   |

<sup>1</sup> This figure includes the top-up benefit for Superannuation Guarantee requirements.

If the valuation assumptions of the 2009 investigation had been retained, then the unfunded liability would have been \$949.5 million rather than \$829.2million.

### 6.3.2 SANCS Employers - Theoretical Contribution Rate

If all employers taken as a whole had always contributed to the scheme on a basis to fully fund benefits, the theoretical rate of employer contribution, based on the past age and sex distribution of entrants for Part 1 and Part 3 employers and on the current actuarial basis, excluding short term items, would be 2.2% of members' salaries.

### 6.3.3 SANCS Employers - Superannuation Guarantee Costs

When a contributor ceases service, the total benefit payable from SANCS and the associated fund (SASS, SSS or PSS) is compared with the minimum benefit payable under the Superannuation Guarantee legislation (refer Volume II). If there is a shortfall the difference is made up from the SANCS reserves.

The present value of the total liability for top-up payments in respect of all members is:

| In respect of members who also contribute to: | \$m  |
|---|------|
| SASS  | 43.9 |
| SSS   | 0.1  |
| PSS   | 0.9  |

The total top-up represents a contribution averaged over all employers of 0.1% of members' salaries.

Note that the unfunded past service liability in section 6.3.1, includes allowances for these SG costs.

Also note that the value of the top-up liability is very sensitive to the assumptions made, as it is the difference between two larger amounts which can vary.

The SG contribution has been legislated to increase by 0.5% each year from 2013 to 2020. As no increase has yet actually occurred, all the costs in this investigation assume that the SG contribution remains at its current level.

The increase in cost, under the current actuarial assumptions would be \$21.9 million if the SG contribution rises as projected, almost all in respect of SASS contributors.

The total top-up assuming increasing SG contribution would require a contribution averaged over all employers of 0.2% of members' salaries.

#### 6.3.4 SANCS Employers Reserve - Financial Progress

The SANCS investigation as at 30 June 2009 revealed an unfunded liability in the Employers Reserve of \$1,531.7 million. The main reasons for the decrease in this liability to \$829.2million at 30 June 2012 are set out below. The method used is to assess the effect of differences between the assumptions made at the previous valuation and the actual experience of the inter-investigation period.

- Rates of investment earnings were lower than expected, increasing the deficiency;
- Rates of salary increase were higher than expected, increasing the deficiency;
- There were slightly more exits than expected. More exits give rise to a deficiency as the accrued benefit is higher than the reserves held;
- Contributions net of tax actually paid were more than the rate of accrual of benefit, due to funding of past deficiencies. As well some cross-transfers between schemes were made within individual employers' reserves, slightly reducing this surplus item;
- Following analysis of the experience, the valuation basis was altered, resulting in a decrease in the current unfunded liability.

Set out below is a summary of the progress of the unfunded liability, showing the estimated financial effect of the major items:

| <b>SANCS Employers Reserve</b>                            |            |
|---|------------|
| <b>Item</b>   | <b>\$m</b> |
| Unfunded liability as at 30 June 2009                     | 1,531.7    |
| Plus interest to 30 June 2012 at valuation rate           | 360.6      |
| Deficiency due to lower than expected investment earnings | 108.2      |
| Deficiency due to higher than expected salary increases   | 12.2       |
| Exits   | 2.1        |
| Excess of contributions over benefit accrual              | -1,070.0   |
| Change in valuation basis at 30 June 2012                 | -120.3     |
| Other sources and rounding                                | 4.7        |
| Unfunded liability at 30 June 2012                        | 829.2      |

### 6.3.5 SANCS Employers - Valuation Balance Sheet including benefits and contributions in respect of future service

The valuation balance sheet for the Employers Reserve is set out below:

| <b>SANCS Employers Reserve</b>  |            |            |
|---|------------|------------|
|   | <b>\$m</b> | <b>\$m</b> |
| Present value of benefits payable in future to contributors in respect of service prior to the valuation date*: |            |            |
| • Male contributors   | 1,268.4    |            |
| • Female contributors   | 912.3      | 2,180.7    |
| <b>Plus</b>   |            |            |
| Present value of benefits payable in future to current contributors in respect of future service*:              |            |            |
| • male contributors   | 342.2      |            |
| • female contributors   | 236.2      | 578.4      |
| <b>Plus</b>   |            |            |
| Present value of future administration expenses   |            | 27.5       |
| <b>Less</b>   |            |            |
| Amount of fund  |            | 1,373.3    |
| <b>Gives</b>  |            |            |
| Amount to be funded by employer contributions   |            | 1,413.4    |

\* includes allowance for SG top-up benefits

### 6.3.6 SANCS Employers Reserve - Index

The sum of the vested benefits (as defined in Section 5 above) for SANCS membership amounted to \$2,830.8 million as at 30 June 2012. Therefore the ratio of assets to vested benefits is \$1,373.3million/\$2,830.8million ie 48.5%.

The progress of this index over successive investigations has been:

|              |      |
|--------------|------|
| 30 June 2003 | 0.18 |
| 30 June 2006 | 0.41 |
| 30 June 2009 | 0.26 |
| 30 June 2012 | 0.49 |

### 6.3.7 Sensitivity Tests - Combined employer reserves

In order to test the sensitivity of the results of the valuation to the economic assumptions made, the effect on the unfunded liability of varying each factor by plus or minus 1% was calculated. The alternative bases used were:

- earned interest rate +1% (long term rate 8.3%p.a)
- earned interest rate -1% (long term rate 6.3%p.a)
- inflationary salary increases +1% (long term rate 5%)
- inflationary salary increases -1% (long term rate 3%)

(Variations in CPI have no effect on SANCS results, so alternatives (e) and (f) are omitted and there are no pensions in SANCS.)



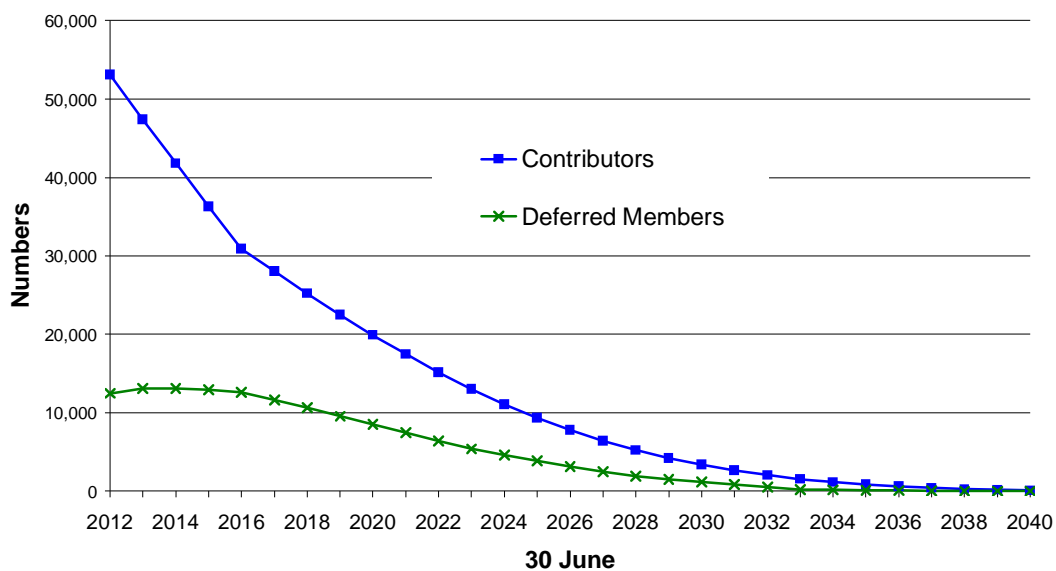
The table below shows the unfunded liability in the Employers Reserve under SANCS under each of the above assumptions.

| Assumption      |                     | Employer Unfunded Liability \$m |
|-----------------|---------------------|---------------------------------|
| Valuation basis |                     | 829.2                           |
| (a)             | +1% interest        | 711.0                           |
| (b)             | -1% interest        | 961.3                           |
| (c)             | +1% salary increase | 961.6                           |
| (d)             | -1% salary increase | 708.9                           |

### 6.4 Projections for SANCS

The numbers of contributors and deferred members have been projected to 2040.

#### SANCS Scheme - Projected Numbers of Contributors and Deferred Benefit Members



## 6.5 SSS – Valuation of Liabilities

This section sets out the results for SSS. The valuation of the liabilities includes both Employer and Contributor Reserves.

### 6.5.1 Unfunded liability

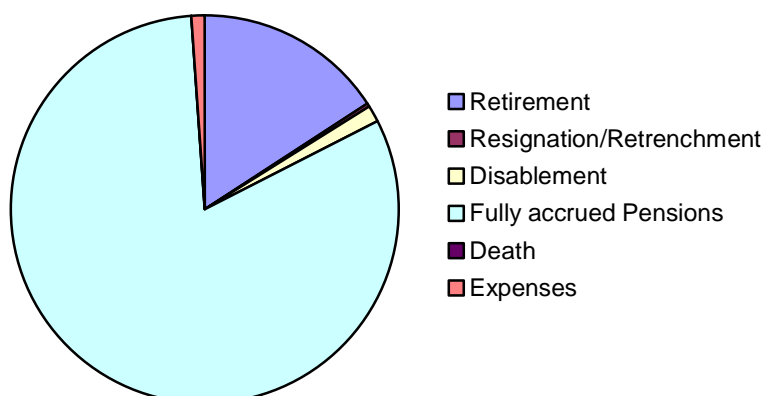
The unfunded liability for accrued benefits is set out below.

| <b>SSS</b>   |            |                  |
|--|------------|------------------|
|  | <b>\$m</b> | <b>Total \$m</b> |
| Present value of benefits (fully accrued) payable to existing pensioners                                       |            |                  |
| • pensions in course of payment  | 21,502.9   |                  |
| • reversionary pensions  | 1,073.4    | 22,576.3         |
|  |            |                  |
| <b>Plus</b>  |            |                  |
| Present value of benefits (fully accrued) payable to existing deferred members                                 | 498.0      | 498.0            |
| <b>Plus</b>  |            |                  |
| Present value of benefits payable in future to contributors in respect of service prior to the valuation date: |            |                  |
| • male contributors  | 5,233.9    |                  |
| • female contributors  | 2,435.3    | 7,669.2          |
| <b>Plus</b>  |            |                  |
| Present value of expenses in respect of accrued benefits   |            | 307.4            |
| <b>Less</b>  |            |                  |
| Amount of fund, including both Member and Employer Reserve adjustments (refer Volume II)                       |            | 18,957.1         |
| <b>Gives</b>   |            |                  |
| Unfunded past service liability  |            | 12,093.8         |

If the valuation assumptions of the 2009 investigation had been retained, then the unfunded liability would have been \$11,797.4 million rather than \$12,093.8 million.

The pie chart below shows the allocation, on the valuation assumptions, of the total employer liability between fully accrued pensions, members resigning in future, retiring, becoming disabled or dying, as well as expenses of management.

### Allocation of Total Employer Liability



#### 6.5.2 Unfunded superannuation liability - financial progress

The SSS investigation as at 30 June 2009 revealed an unfunded liability of \$10,742.7 million. The main reasons for the increase in the unfunded liability to \$12,093.8 million at 30 June 2012 are set out below. The method used is to assess the effect of differences between the assumptions made at the previous valuation and the actual experience of the inter-investigation period.

- Rates of investment earnings were lower than expected, increasing the unfunded liability. This effect is compounded as the investment earnings shortfall on contributor reserves does not correspondingly reduce the total liability;
- Rates of salary increase were higher than expected, increasing the deficiency;
- CPI increases in pensions were higher than expected, giving rise to a deficiency;
- In respect of exits, lower than expected commutation of pension increased the unfunded liability. Fewer than expected early retirements contributed towards surplus;
- Contributions during the investigation period were higher than the accrual of benefits, due in part to Crown funding strategies;
- Some cross-transfers between schemes were made within individual employers' reserves, increasing the deficiency in respect of SSS;
- Following analysis of the experience, the valuation basis was altered, resulting in an increase in the liability.

Set out below is a summary of the progress of the unfunded liability, showing the estimated financial effect of the major items:

| <b>SSS</b>  |                 |
|---|-----------------|
| <b>Item</b>   | <b>\$m</b>      |
| Unfunded past service liability as at 30 June 2009        | 10,742.7        |
| plus interest to 30 June 2012 at valuation rate           | 2,677.6         |
| Deficiency due to lower than expected investment earnings | 517.9           |
| Deficiency due to higher than expected salary increases   | 78.2            |
| Deficiency due to higher than expected CPI increases      | 116.6           |
| Exits - deficiency due to lower commutation of pension    | 52.3            |
| - surplus due to later retirements                        | -10.0           |
| Excess of accrual over contributions                      | -2,553.2        |
| Employer reserve reallocation                             | 174.2           |
| Change in valuation basis at 30 June 2012                 | 296.4           |
| Other sources and rounding                                | 1.1             |
| <b>Unfunded liability at 30 June 2012</b>                 | <b>12,093.8</b> |

### 6.5.3 Total liability including benefits and contributions in respect of future service

The valuation balance sheet as at 30 June 2012 for the State Superannuation Scheme is set out below, taking into account total service benefits as well as expected future contributions, expenses and taxes.

| <b>SSS</b>   |            |                  |
|--|------------|------------------|
|  | <b>\$m</b> | <b>Total \$m</b> |
| Present value of benefits (fully accrued) payable to existing pensioners                                       |            |                  |
| • pensions in course of payment  | 21,502.9   |                  |
| • reversionary pensions  | 1,073.4    | 22,576.3         |
| <b>Plus</b>  |            |                  |
| Present value of benefits (fully accrued) payable to existing deferred members                                 | 498.0      | 498.0            |
| <b>Plus</b>  |            |                  |
| Present value of benefits payable in future to contributors in respect of service prior to the valuation date: |            |                  |
| • male contributors  |            |                  |
| • female contributors  | 5,233.9    |                  |
| <b>Plus</b>  | 2,435.3    | 7,669.2          |
| Present value of benefits payable in future to current contributors in respect of future service:              |            |                  |
| • male contributors  | 644.3      |                  |
| • female contributors  | 307.9      | 952.3            |
| <b>Plus</b>  |            |                  |
| Present value of future expenses of management   |            | 322.8            |
| <b>Less</b>  |            |                  |
| Present value of future contributions by employees   |            | 583.0            |

| <b>SSS</b>   |            |                      |
|--|------------|----------------------|
|  | <b>\$m</b> | <b>Total<br/>\$m</b> |
| <b>Less</b>  |            |                      |
| Amount of fund, including both Member and Employer Reserve adjustments (refer Volume II) |            | 18,957.1             |
| <b>Gives</b>   |            |                      |
| Amount to be funded by employer contributions  |            | 12,478.5             |

We have calculated the Aggregate Employer Contribution Rate required over the future working life-time of current contributors to fully fund (after taking into account future employee contributions) all benefits, expenses and taxes arising from future service only. The required contribution is 0.75 times member contributions. Expressed as a level percentage of salary the contribution required is 11.2%.

#### 6.5.4 Funding indices

Assets available for employer liabilities amount to \$15,922.7 million.

Vested benefits are the benefits payable on immediate withdrawal from the scheme, ie normal or early retirement benefit if eligible or else the resignation benefit. The benefit may be taken as an immediate benefit or as a deferred benefit. The sum of the value of employer-funded vested benefits (taken as immediate benefits) plus benefits due to current pensioners and deferred members is \$27,230.1 million as at 30 June 2012. The sum of the value of vested deferred benefits plus benefits due to current pensioners and deferred members is \$27,993.0 million.

The progress of the funding indices over successive investigations has been:

|              | Vested Benefits | Deferred Benefits |
|--------------|-----------------|-------------------|
| 30 June 2003 | 0.70            | 0.62              |
| 30 June 2006 | 0.70            | 0.65              |
| 30 June 2009 | 0.60            | 0.57              |
| 30 June 2012 | 0.59            | 0.57              |

Accrued benefits as defined in section 5 above are the present value of retirement benefits expected to be payable in the future in respect of completed membership at the valuation, based on current salary. The total value of employer-financed benefits is allocated to past and future service using the proportional method. The total liability for accrued employer-financed benefits is \$29,782.8 million.

The progress of this index over successive investigations has been:

|              |      |
|--------------|------|
| 30 June 2003 | 0.58 |
| 30 June 2006 | 0.61 |
| 30 June 2009 | 0.51 |
| 30 June 2012 | 0.54 |

### 6.5.5 Unfunded liability - sensitivity tests

In order to test the sensitivity of the results of the valuation to the economic assumptions made, the effect on the unfunded liability of varying each factor by plus or minus 1% was calculated. The alternative bases used were:

|     |  |
|-----|--|
| (a) | earned interest rate +1% (long term rate 8.3%/9.3%p.a) |
| (b) | earned interest rate -1% (long term rate 6.3%/7.3%p.a) |
| (c) | inflationary salary increases +1% (long term rate 5%)  |
| (d) | inflationary salary increases -1% (long term rate 3%)  |
| (e) | CPI increases +1% (long term rate 3.5%)                |
| (f) | CPI increases -1% (long term rate 1.5%)                |

In addition the sensitivity of the results of the valuation to the assumptions made in respect of pensioner mortality was analysed by comparing the results under higher and lower mortality rates for pensioners.

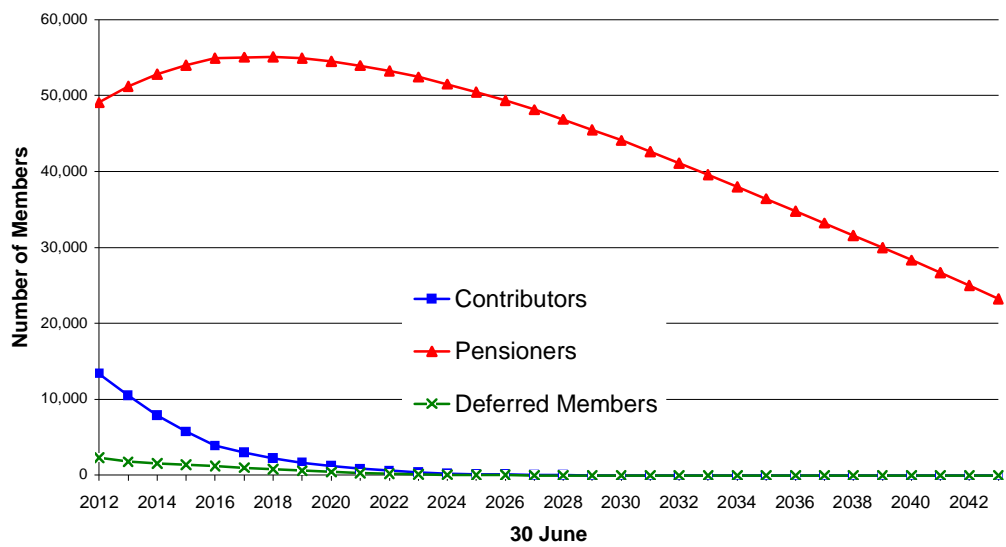
The table below shows the employer unfunded liability under SSS under each of the above assumptions.

| Assumption                 |                     | Employer Unfunded Liability \$m |
|----------------------------|---------------------|---------------------------------|
| Valuation basis            |                     | 12,093.8                        |
| (a)                        | +1% interest        | 9,317.8                         |
| (b)                        | -1% interest        | 15,403.2                        |
| (c)                        | +1% salary increase | 12,260.2                        |
| (d)                        | -1% salary increase | 11,935.3                        |
| (e)                        | +1% CPI increase    | 15,405.1                        |
| (f)                        | -1% CPI increase    | 9,280.7                         |
| Pensioner mortality higher |                     | 11,860.7                        |
| Pensioner mortality lower  |                     | 12,176.3                        |

## 6.6 Projections for SSS

The number of contributors, deferred benefit members and pensioners have been projected to 2043.

### SSS - Projected Numbers of Contributors, Pensioners and Deferred Benefit Members



## 6.7 PSS – Valuation of Liabilities

The PSS valuation liabilities include both Member Reserves and Employer Reserves.

### 6.7.1 Unfunded liability

The unfunded liability for accrued benefits is set out below.

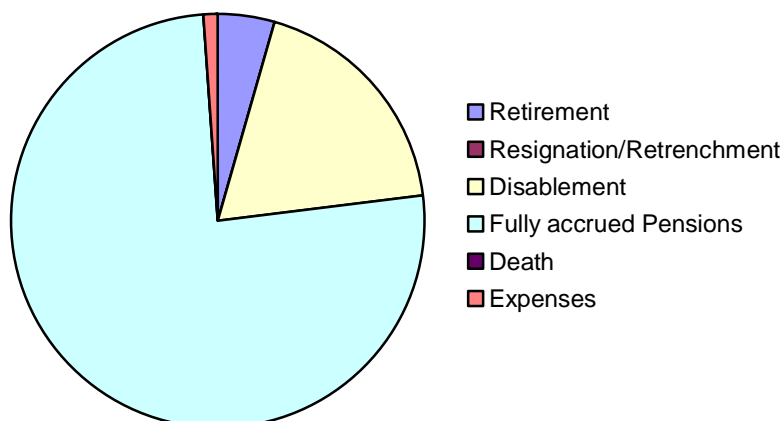
| <b>PSS</b>   |            |                      |
|--|------------|----------------------|
|  | <b>\$m</b> | <b>Total<br/>\$m</b> |
| Present value of benefits (fully accrued) payable to existing pensioners                                       |            |                      |
| • pensions in course of payment  | 4,785.1    |                      |
| • reversionary pensions  | 230.2      | 5,015.2              |
|  |            |                      |
| <b>Plus</b>  |            |                      |
| Present value of benefits (fully accrued) payable to existing deferred members                                 |            | 17.8                 |
| <b>Plus</b>  |            |                      |
| Present value of benefits payable in future to contributors in respect of service prior to the valuation date: |            |                      |
| • male contributors  | 1,452.3    |                      |
| • female contributors  | 172.6      | 1,624.9              |
| <b>Plus</b>  |            |                      |
| Present value of expenses in respect of accrued benefits   |            | 66.6                 |
| <b>Less</b>  |            |                      |
| Amount of fund, including both Member and Employer Reserve adjustments (refer Volume II)                       |            | 3,678.0              |
| <b>Gives</b>   |            |                      |
| Unfunded past service liability  |            | 3,046.5              |

If the valuation assumptions of the 2009 investigation had been retained, then the unfunded liability would have been \$2,870.9 million rather than \$3,046.5 million.

The pie chart below shows the allocation, on the valuation assumptions, of the total employer liability between fully accrued pensions, members resigning in future, retiring, becoming disabled or dying, as well as expenses of management.



### Allocation of Total Employer Liability



#### 6.7.2 Unfunded superannuation liability - financial progress

The PSS investigation as at 30 June 2009 revealed an unfunded liability to be met by the employer of \$3,576.6 million. The main reasons for the decrease in the unfunded liability to \$3,046.5 million at 30 June 2012 are set out below. The method used is to assess the effect of differences between the assumptions made at the previous valuation and the actual experience of the inter-investigation period.

- Rates of investment earnings were lower than expected, increasing the deficiency;
- Rates of salary increase were lower than expected, reducing the deficiency;
- CPI increases were higher than expected, increasing the shortfall;
- Lower than expected hurt on duty disabilities gave rise to a surplus and the actual hurt on duty pensions commenced were lower than expected;
- Contributions during the investigation period were higher than the accrual of benefits, due to Crown funding strategies;
- Some cross-transfers between schemes were made within the Crown employers' reserves, reducing the deficiency in respect of PSS;
- Following analysis of the experience, the valuation basis was altered, resulting in an increase in the current unfunded liability.

Set out below is a summary of the progress of the deficiency, showing the estimated financial effect of the major items:

| <b>PSS</b>  |            |
|---|------------|
| <b>Item</b>   | <b>\$m</b> |
| Unfunded past service liability as at 30 June 2009        | 3,576.6    |
| plus interest to 30 June 2012 at valuation rate           | 841.9      |
| Deficiency due to lower than expected investment earnings | 100.7      |
| Surplus due to lower than expected salary increases       | -23.0      |
| Deficiency due to higher than expected CPI increases      | 25.8       |
| Exits - surplus due to low HOD disabilities               | -124.4     |
| Excess of accrual over contributions                      | -1,525.4   |
| Employer reserve reallocation                             | -25.2      |
| Change in valuation basis at 30 June 2012                 | 175.6      |
| Other sources and rounding                                | 23.9       |
| Unfunded liability at 30 June 2012                        | 3,046.5    |

### 6.7.3 Total liability including benefits and contributions in respect of future service

The valuation balance sheet as at 30 June 2012 for the Police Superannuation Scheme is set out below, taking into account total service benefits as well as expected future contributions, expenses and taxes.

| <b>PSS</b>   |            |                  |
|--|------------|------------------|
|  | <b>\$m</b> | <b>Total \$m</b> |
| Present value of benefits (fully accrued) payable to existing pensioners                                       |            |                  |
| • pensions in course of payment  | 4,785.1    |                  |
| • reversionary pensions  | 230.2      | 5,015.2          |
| <b>Plus</b>  |            |                  |
| Present value of benefits (fully accrued) payable to existing deferred members                                 |            | 17.8             |
| <b>Plus</b>  |            |                  |
| Present value of benefits payable in future to contributors in respect of service prior to the valuation date: |            |                  |
| • male contributors  | 1,452.3    |                  |
| • female contributors  | 172.6      | 1,624.9          |
| <b>Plus</b>  |            |                  |
| Present value of benefits payable in future to contributors in respect of future service:                      |            |                  |
| • male contributors  | 252.5      |                  |
| • female contributors  | 40.4       | 292.9            |
| <b>Plus</b>  |            |                  |
| Present value of future expenses of management   |            | 70.0             |
| <b>Less</b>  |            |                  |
| Present value of future contributions by employees at 6% of members' salaries                                  |            | 50.3             |
| <b>Less</b>  |            |                  |

|  | \$m | Total \$m |
|--|-----|-----------|
| Amount of fund, including both Member and Employer Reserve adjustments (refer Volume II) |     | 3,678.0   |
| <b>Gives</b>   |     |           |
| Amount to be funded by future employer contributions                                     |     | 3,292.6   |

We have calculated the Aggregate Employer Contribution Rate required over the future working life-time of current members to fully fund (after taking into account future employee contributions) all benefits arising from future service only. The rate is 30.4% of members' salaries.

#### 6.7.4 Funding indices

PSS benefits are funded by a 6% contribution from in force membership, the balance being met by the Consolidated Fund. A funding strategy is in place to fully fund accrued benefits.

Assets available for employer liabilities amount to \$3,351.7 million.

Vested benefits are the benefits payable on immediate withdrawal from the scheme, ie normal or early retirement benefit if eligible else the resignation benefit. The benefit may be taken as an immediate benefit or as a deferred benefit. The sum of the value of the vested benefits (taken as immediate benefits) plus value of benefits due to current pensioners and deferred members is \$5,231.5 million as at 30 June 2012. The sum of the value of vested deferred benefits plus value of benefits due to current pensioners and deferred members is \$5,556.4 million.

The progress of the shortfall in funding over successive investigations has been:

|              | Vested Benefits | Deferred Benefits | Accrued Benefits |
|--------------|-----------------|-------------------|------------------|
| 30 June 2003 | 0.28            | 0.24              | 0.18             |
| 30 June 2006 | 0.15            | 0.14              | 0.06             |
| 30 June 2009 | 0.61            | 0.52              | 0.24             |
| 30 June 2012 | 0.64            | 0.60              | 0.29             |

#### 6.7.5 Alternative bases - sensitivity tests

In order to test the sensitivity of the results of the valuation to the economic assumptions made, the effect on the unfunded past service liability of varying each factor by plus or minus 1% was calculated. The alternative bases used were:

- earned interest rate +1% (long term rate 8.3%/9.3%p.a)
- earned interest rate -1% (long term rate 6.3%/7.3%p.a)
- inflationary salary increases +1% (long term rate 5%)
- inflationary salary increases -1% (long term rate 3%)
- CPI increases +1% (long term rate 3.5%)
- CPI increases -1% (long term rate 1.5%)

In addition the sensitivity of the results of the valuation to the assumptions made in respect of pensioner mortality was analysed by comparing the results under higher and lower mortality rates for pensioners.

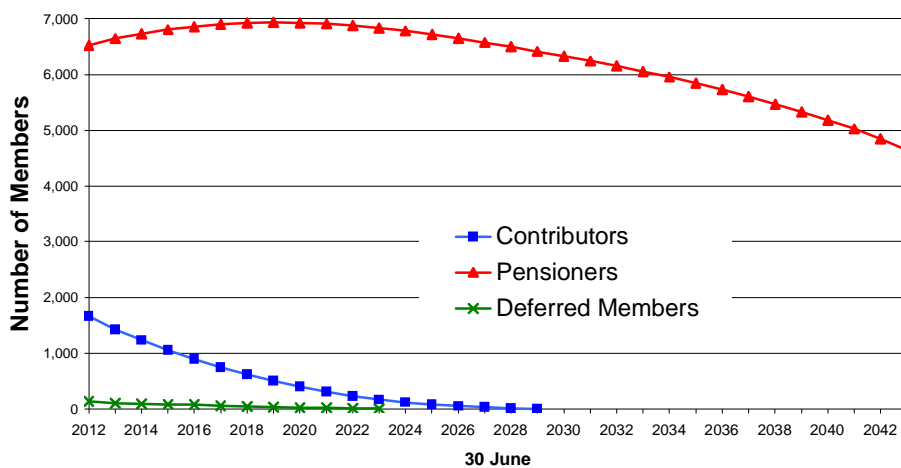
The table below shows the unfunded past service liability under PSS with each of the above assumptions.

| Assumption                 |                     | Unfunded Past Service Liability<br>\$m |
|----------------------------|---------------------|--|
| Valuation basis            |                     | 3,046.5                                |
| (a)                        | +1% interest        | 2,359.4                                |
| (b)                        | -1% interest        | 3,883.6                                |
| (c)                        | +1% salary increase | 3,120.1                                |
| (d)                        | -1% salary increase | 2,977.1                                |
| (e)                        | +1% CPI increase    | 3,849.1                                |
| (f)                        | -1% CPI increase    | 2,377.1                                |
| Pensioner mortality higher |                     | 2,997.6                                |
| Pensioner mortality lower  |                     | 3,063.3                                |

## 6.8 Projections for PSS

The number of contributors, deferred benefit members and pensioners has been projected to 2043.

### PSS - Projected Numbers of Contributors, Pensioners and Deferred Benefit Members

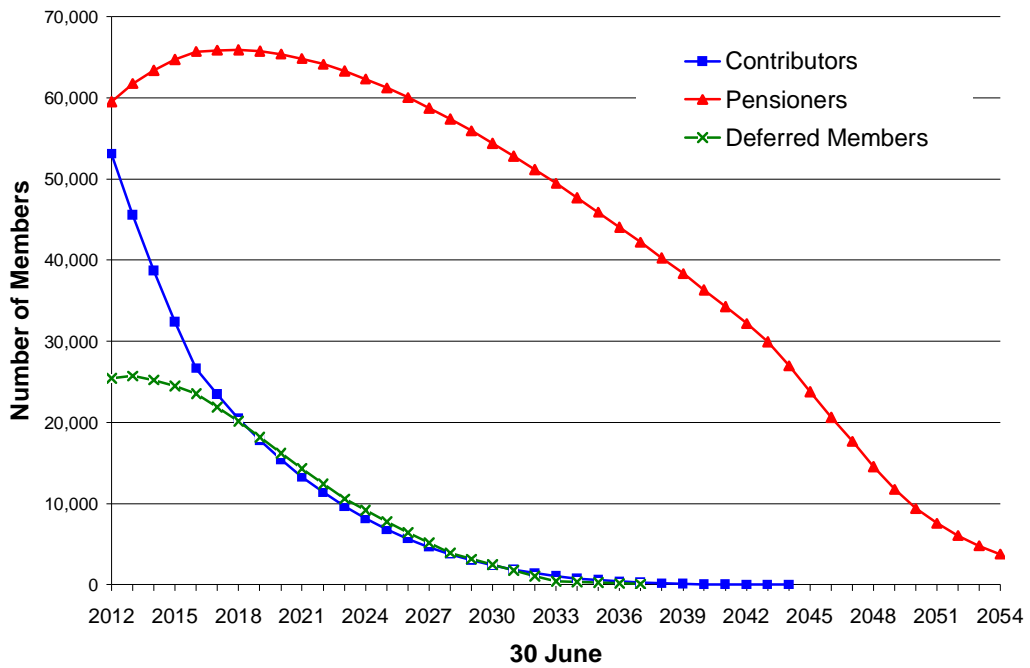


## 6.9 Total Pooled Fund Results

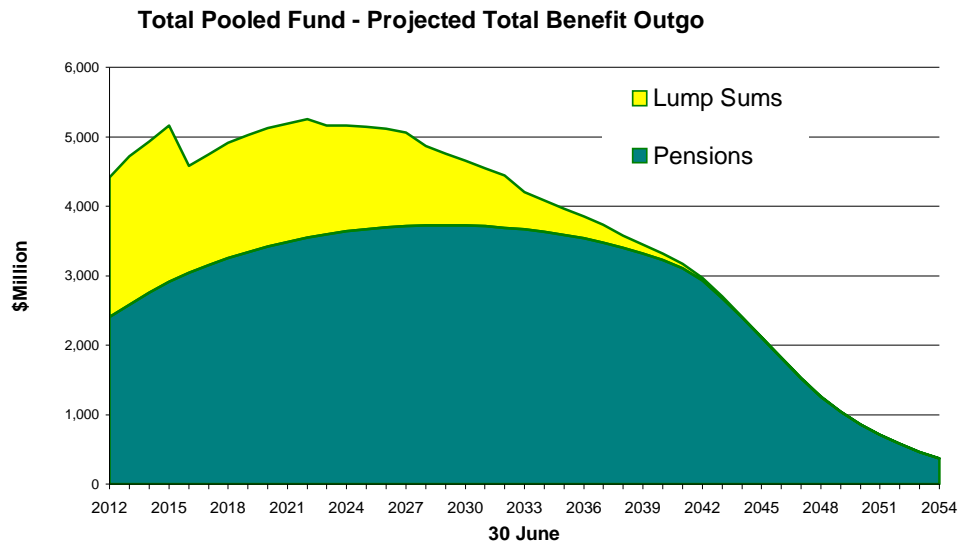
### 6.9.1 Consolidated Pooled Fund Projected Membership

The graph below shows projected numbers of contributors for the total Pooled Fund (excluding SANCS contributors as each SANCS contributor has an associated SASS, SSS or PSS membership), pensioners and deferred members.

**Total Pooled Fund - Projected Numbers of Contributors, Pensioners and Deferred Members**



Consolidated Pooled Fund Projected Total Benefits



(Note that the early discontinuity in lump sum payments is due to the short term redundancies assumed.)

## 7

## Results of funding valuation by employer grouping

*This section includes details of the funding plans of the General Government Sector and the Universities.*

### 7.1 Employer groupings

The NSW Government has established a classification system to help apply appropriate financial and management controls across the range of State Sector organisations.

In broad terms, organisations are categorised according to their dependence on the public purse and on the level of competition with the private sector.

Consistent with the Government Finance Statistics framework, all entities controlled by the NSW Government (i.e. State Sector entities) are classified as General Government Sector or Non-General Government Sector.

General Government Sector agencies typically deliver public services or are regulatory in nature. There are both budget dependent and non-budget dependent general Government agencies.

#### Budget Dependent General Government Agencies (also called as Crown agencies)

Broadly, these are agencies that have more than half of their operating income funded from the Consolidated Fund. They are predominantly engaged in social (rather than commercial) activities and include all government departments.

#### Non-Budget Dependent General Government Agencies (also called Non Crown General Government Agencies)

These agencies have less than half of their operating income funded from the Consolidated Fund. They source funds from regulatory and user charges and in some cases a grant from a Budget dependent agency.

#### Non-General Government agencies (PTEs and PFEs)

These agencies are generally commercially focussed and include Public Trading Enterprises (PTEs) and Public Finance Enterprises (PFEs). They operate under the Commercial Policy Framework which aims to replicate disciplines and incentives that lead private sector businesses towards efficient commercial practices. They generally pay dividends and tax equivalent payments in accordance with normal commercial principles. The predominant PFE is NSW Treasury Corporation.

Another distinct grouping is the Universities sector.

The remaining employers are classified as “other”.

## 7.2 Crown and Non-Crown General Government Sector

The financial position of the General Government Sector is:

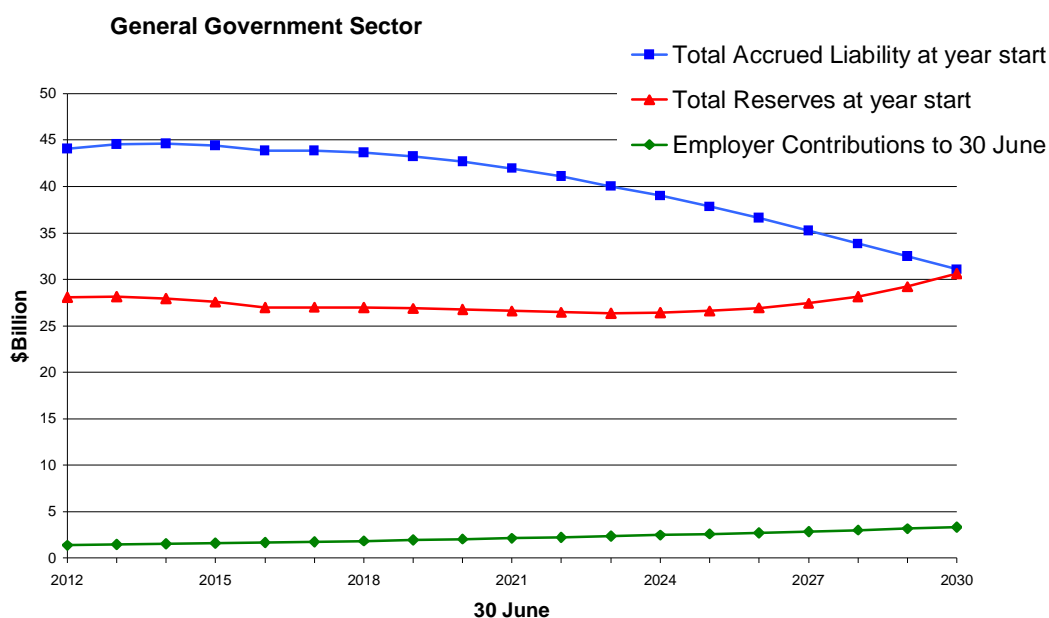
| General Government Sector              |                  |
|--|------------------|
|  | <b>\$billion</b> |
| Present value of past service benefits | 36.703           |
| Value of assets                        | 20.670           |
| Deficiency                             | 16.033           |

The 2012-13 Budget Statement included the comment “Funding arrangements are reviewed every three years following the release of the triennial actuarial review, and will be reviewed following completion of the current triennial review in December 2012.”

The Non-Crown General Government sector employers are assumed to continue to contribute at recent levels of contributions as a percentage of salaries of members. The contributors for the Crown are determined to fully fund the General Government sector by 30 June 2030.

The following graph sets out the expected progress of assets and liabilities assuming that :

- Crown contributions increase at 5% per annum;
- Contributions are calculated on the basis of the funding valuation, and actual experience matches the assumptions:



This graph highlights that assets are expected to equal the value of liabilities as at 30 June 2030.



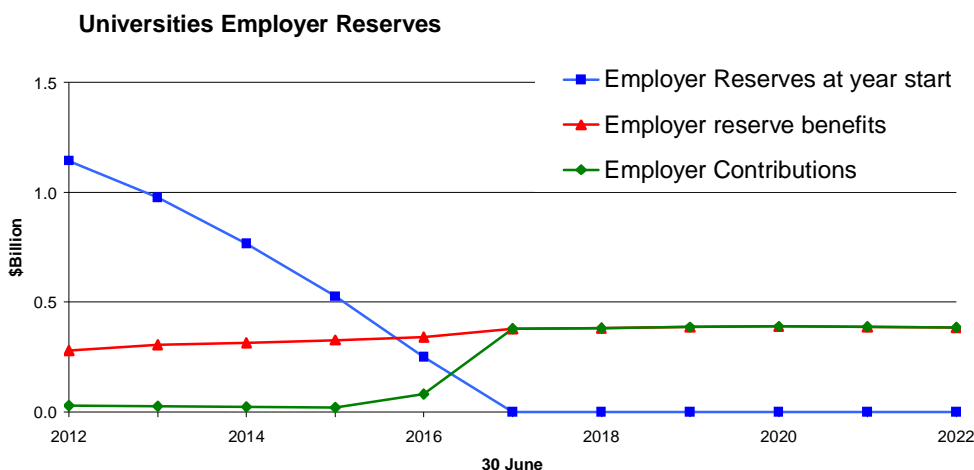
### 7.3 Universities

As an employer group, the financial position of the Universities is:

| Universities                           |                  |
|--|------------------|
|  | <b>\$billion</b> |
| Present value of past service benefits | 3.514            |
| Value of assets                        | 1.142            |
| Deficiency                             | 2.372            |

The current level of employer contributions to the Pooled Fund by the Universities is 17% of salaries. It is assumed that this level of contribution continues until the assets are depleted at which stage funding reverts to pay as you go.

This level is not sufficient, as the following graph of the employer reserves of the Universities shows:



The above graph depicts the University sector as a whole. In practice different University sub-funds run out at different times.

### 7.4 PTEs and other employers

As a group, the financial position of the Public Trading Enterprises (PTEs) and other employers is:

| PTEs and other employers               |                  |
|--|------------------|
|  | <b>\$billion</b> |
| Present value of past service benefits | 3.959            |
| Value of assets                        | 3.385            |
| Deficiency                             | 0.574            |

Possible individual funding plans for each employer are set out in Volume II.

## 8

## Financial position valuation

*This section sets out the results of the financial position valuation for the Pooled Fund as a whole.*

### 8.1 Purpose of the financial position valuation

The financial position valuation is an assessment of the Pooled Fund on a stand alone scenario: a hypothetical situation where the Trustee does not rely on future contributions by the employer and where the Trustee thereby needs to be as certain as practicable that there are sufficient assets in the fund to meet the liabilities to members that have accrued to the date of the investigation. It is the financial position if the Trustee completely derisked the investments, and invested in Commonwealth bonds.

This valuation basis is similar to that required under accounting standard AASB 119.

### 8.2 Process and assumptions

The process and assumptions for the financial position valuation are the same as for the funding valuation except for the rate of investment return and rate of discount.

The rate of investment return / rate of discount is assumed to be the ten year government bond rate, as a proxy for the rate of return of the riskless asset.

There are two caveats to deeming this rate to be riskless:

- a. The actual dates of the cash flows of the liabilities are not knowable in advance as they depend upon future rates of inflation, salary increase and decrements. Hence complete matching is not possible.
- b. In any event, the vast majority of Commonwealth bonds have a term of ten years or less, compared to the liabilities which have cash flows extending for decades.
- c. A gross rate of investment return / discount has been used. This is not theoretically appropriate since the investment return is taxed in the accumulation phase. However it is a reasonable approximation since pension liabilities increasingly dominate the Pooled Fund.

### 8.3 Results

The results of the financial position valuation for the employer financed section of the Pooled Fund are:

|      |                                    |            |
|------|------------------------------------|------------|
|      |                                    | \$ million |
|      | Value of employer accrued benefits | 82,609     |
| less | Employer reserve account           | 25,198     |
|      | Employer unfunded liability        | 57,411     |

## 8.4 Comparison with funding valuation

The employer unfunded liability on the funding valuation basis was \$19.0 billion, compared with \$57.4 billion unfunded liability on the financial position basis. The difference is the expected gain from the Trustee investing in more risky assets; it is also a measure of the value of the employer's covenant to meet the future liability obligations.

# 9

## Investment objective valuation

*This section sets out the results of the investment objective valuation for the Pooled Fund as a whole.*

### 9.1 Purpose of the investment objective valuation

The investment objective valuation uses a set of assumptions consistent with the Trustee's investment objectives as set out in the Investment Policy.

### 9.2 Process and assumptions

The process and assumptions for the investment objective valuation are the same as for the funding valuation except for the rate of investment return and the rate of discount.

The rate of investment return / rate of discount assumption is 8.0% per annum for pensioners and 7.0% per annum for all other members.

### 9.3 Results

The results of the investment objective valuation for the employer financed section of the Pooled Fund are:

|      |                                    | \$ million |
|------|------------------------------------|------------|
|      | Value of employer accrued benefits | 45,600     |
| less | Employer reserve account           | 25,198     |
|      | Employer unfunded liability        | 20,402     |

### 9.4 Comparison with funding valuation

The employer unfunded liability on the funding valuation basis was \$19.0 billion, compared with \$20.4 billion unfunded liability on the investment objective valuation basis. The difference is broadly the remaining unfunded liability were the recommended contributions paid and the investment objective precisely met.



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