Report on the

GOVERNMENT SUPERANNUATION FUND
Te Pūtea Penihana Kāwanatanga

ACTUARIAL VALUATION
as at 30 June 2011

2011

Presented to the House of Representatives pursuant to section 94 of the Government Superannuation Fund Act 1956

REPORT ON THE GOVERNMENT SUPERANNUATION FUND ACTUARIAL VALUATION AS AT 30 JUNE 2011

The Board
Government Superannuation Fund Authority

I enclose my report on my actuarial examination of the financial position of the Government Superannuation Fund (**GSF** or **the Fund**) as at 30 June 2011 in terms of Section 94 of the Government Superannuation Fund Act 1956, which states:

> *"94 (1) The Government Actuary must examine the financial position of the Fund as at 30 June 1997 and following that examination, as at dates determined by the Minister, being dates that are no more than 3 years apart.*
>
> *(2) The report in respect of each such examination shall–*
>
> *(a) show the state of the Fund at the date as at which the financial position of the Fund was examined, having regard to the prospective liabilities and assets of, and the probable annual sums required by, the Fund to provide benefits falling due within the ensuing 3 years without affecting or having recourse to the actuarial reserve appertaining to the contributor's contributions; and*
>
> *(b) be sent to the Authority not later than 9 months after the date as at which the financial position of the Fund was examined.*
>
> *(3) The Authority shall send a copy of the report to the Minister."*

As requested by the Minister, I am now examining the financial position of the Fund and reporting annually, the last report being as at 30 June 2010.

Purpose of the report

The broad purpose of the actuarial report is to provide an account of my examination of the financial position of the Fund.

The specific purposes of my examination are:

- to calculate the proportion of benefits payable from the Fund that is to be met from the accrued assets of the Fund,
- to evaluate the unfunded liability of the Fund in respect of past service, and
- to make recommendations in respect of contributions to the Fund to be made by employers of contributors to the Fund with effect from 1st July 2012.

Membership and Fund assets

For purposes of this valuation, the numbers of active members contributing to the Fund in the five main groups covered by this report, together with current and deferred pensioners, are given in the following table.

	Male	**Female**	**Total**
Armed Forces scheme	78	17	95
General schemes, excluding Islands	4,797	2,833	7,630
General schemes, Islands only	254	219	473
Police scheme	219	34	253
Prisons Service scheme	63	9	72
Judges & Solicitor-General schemes	15	0	15
Parliamentary scheme	12	1	13
Total active contributors	**5,438**	**3,113**	**8,551**
Pensioners	27,384	19,455	46,839
Deferred pensioners	5,465	410	5,875

The numbers in respect of pensioners are the number of pensions in payment, including split pensions under the Property (Relationships) Act.

The assets of the Fund as at 30 June 2011 had a market value, as reported in the Fund's audited financial statements, of $3,159 million.

Discount rates

In the previous actuarial report, as at 30 June 2010, two bases were used to discount projected benefits. The present valuation also uses the same two bases to discount projected benefits:

- For the purposes of determining employer contribution rates, and reporting on the liabilities on a "going concern" basis, referred to as the **Statutory** basis, I have used a discount rate that takes into account the effect of intended full diversification of the assets of the Fund.
- For determining the Fund Share of Benefits, and reporting on the liabilities with an "accounting practice" viewpoint, referred to as the **Fund Share** basis, I have used a net of tax risk-free discount rate. The use of a net discount rate reflects that the Fund pays tax which impacts on cash flows.

Changes in benefit projection bases

There is a continuing feature of the General schemes retirement pattern with the actual experience reflecting more members staying in service towards and beyond the eligibility age for New Zealand Superannuation of 65 years.

Results

1. The present value of the total liabilities of the Fund, including the benefits accruing from expected future membership is calculated as $12,773 million (Statutory basis) and $16,633 million (Fund Share basis).

2. Taking into account the market value of the Fund assets of $3,159 million and the present value of expected future member contributions of $294 million determined on the Fund Share basis, the share of future benefit payments to be met from the assets of the Fund should increase from the present 20%, to a level of 21.1% with effect from 1st July 2012. The calculation of the Fund Share is net of the $296 million liability and $1 million contributions in respect of the Judges & Solicitor-General schemes and the Parliamentary scheme which are funded on a pay-as-you-go basis.

3. The level of required Government subsidy, excluding the subsidy required for the Judges & Solicitor-General schemes and the Parliamentary scheme, projected over the five years from 30 June 2011 before any offset by way of employer contributions, on the basis that 20% of benefit payments in the first year and 21.1% of benefit payments thereafter will be made from the Fund is:

Year ending:	$ million
30 June 2012	657
30 June 2013	654
30 June 2014	661
30 June 2015	669
30 June 2016	679

4. The present value of the liabilities of the Fund in respect of entitlements accrued up to the valuation date is calculated as $12,255 million (Statutory basis) and $15,853 million (Fund Share basis). Deducting the market value of the Fund assets of $3,159 million, gives results of $9,096 million and $12,694 million respectively for the unfunded past service liability of the Fund.

5 The rate of contribution, including Employer Superannuation Contribution Tax at 33%, that is required to be paid by funding employers (employers of those contributors who are paid from money that is not public money) has been determined under a notional funding approach, and:

- for employers that are the Public Services of the Cook Islands, Niue or Tokelau, is certified as 8.0% of contributor salaries, and
- for employers other than the Public Services of the Cook Islands, Niue or Tokelau, is certified as the average rate of contributor salaries obtained by applying the percentage rates to the contributors of the employer, by reference to gender and age nearest as at 30 June 2011 given in the following table:

Age range	Males	Females
Up to age 53	10.9%	11.3%
Age 54 to age 58	12.9%	13.6%
Age 59 to age 63	14.2%	15.0%
Age 64 to age 68	15.3%	16.1%
Age 69 and over	0.0%	0.0%

In the 2009 statutory valuation, following the global credit crisis, contribution rates increased significantly. It is not desirable to have regular minor changes to the contribution rates. Given the continued extreme volatility of financial markets, together with a review of mortality improvements to be conducted by the new actuary and the increasing retirement age of members in the General schemes, the contribution rates set after the 2010 valuation have been maintained for a further twelve months at which time the next review will occur.

6 The rate of contribution, including Employer Superannuation Contribution Tax, applicable to non-funding employers (the employers of those contributors who are paid from money that is public money) is recommended by reference to the notional funding approach described in this report. The rates of contribution recommended in my actuarial valuation report, as at 30 June 2009 and subsequently maintained are as follows:

- for the Armed Forces scheme: a rate of 25.1% of contributor salaries;
- for the General schemes: a rate of 10.7% of contributor salaries;
- for the Police scheme: a rate of 19.1% of contributor salaries;
- for the Prisons Service scheme: a rate of 0% of contributor salaries;
- for the Judges & Solicitor-General schemes: an amount equal to the benefits payable;
- for the Parliamentary scheme: an amount equal to the benefits payable;

I note that none of the contribution rates for non-funding employers are required to be certified by the Act. The results derived from this actuarial examination of the Fund are the rates required to fully provide the benefits payable by the Fund after making allowance for the future employee contributions and each scheme's current share of the assets. My recommendation to the Minister is that the employer contribution rates for the schemes listed above be maintained at the existing levels for the period from 1 July 2012 to 30 June 2013.

Acknowledgements

I express my appreciation of the assistance provided by the Authority and by the Fund administrator, as they have given me prompt responses to all matters raised with them. I also express my appreciation to Mr Peter Cosseboom who has provided significant actuarial input and help on the intricacies of the Government Superannuation Fund over the last few years.

David Benison, B.Sc.(Econ), FNZSA, FIA
Government Actuary

August 2011

CONTENTS

SECTION

APPENDIX

SECTION 1:

THE NATURE OF THE FUND

1.1 The Fund is established under the Government Superannuation Fund Act 1956 (**the Act**) which governs a number of separate schemes having as their purpose the paying of retirement and other benefits to members. The schemes are registered under the Superannuation Schemes Act 1989 but are exempt, by virtue of section 19H of the Act, from the provisions of sections 7 to 22 of the Superannuation Schemes Act 1989.

1.2 The schemes established under the Act are:

Name	Part of the Act
Government Service superannuation (Old General)	Part 2
New Government Service Superannuation (New General)	Part 2A
Armed Forces scheme	Part 3A
Judges and Solicitor-General scheme	Part 5A
Associate Judges scheme	Part 5B
Parliamentary scheme	Part 6
Police scheme	Part 6A
Prisons Service scheme	Part 6B

1.3 The Judges and Solicitor-General, Associate Judges and Parliamentary schemes are managed on a fully pay as you go basis, and no assets are held by the Fund in respect of them.

1.4 The remainder of the schemes are managed on a partial funding basis. Employee contributions are held by the Fund and invested. Only funding employers, that is employers whose employees are paid from money which is not public money, make payment of employer contributions to the Fund. For other (non-funding) employers, their employer contributions are not paid to the Fund. However, the Government requires those non-funding employers (specifically Government departments and the Ministry of Education in respect of schools) to pay employer contributions to the Crown. The level of the employer contributions is recalculated as part of the statutory actuarial examination of the Fund.

1.5 Benefits that fall due are paid partly from the assets of the Fund, with the balance being met by the Crown. The proportion of the benefits payable from the assets of the Fund is reviewed at each statutory actuarial examination of the Fund.

1.6 The schemes were closed to new members with effect from 1 July 1992, except for persons who were eligible for membership through their employment by the Cook Islands, Niue and Tokelau Public Services. Membership was closed to this latter group from 9 June 1995 in the first two cases and 21 October 1995 for the last.

1.7 As from 2 October 2001, responsibility for investing the assets of the scheme has been vested in the Government Superannuation Fund Authority (**the Authority**).

1.8 Members of the Fund comprise contributing members (current in-service employees who pay contributions), inactive members (former contributing members who have left service but who have not been paid any withdrawal benefit), pensioners (retired employees who are in receipt of regular pension payments) and deferred pensioners (retired employees who will at some future time start to receive regular pension payments).

1.9 For the purposes of this actuarial examination, the members have been separated into groups according to differences in benefit entitlements and other differentiating characteristics. In respect of the General schemes group, the benefits and member contribution obligations differ between the Old General scheme and the New General scheme, but as the vast majority are members of the New General scheme, the differences in liability are not material. The groups are described in more detail in the following table:

Group	Description	Number Active	Number Inactive(1)
Armed Forces	Contributors to the Armed Forces scheme	95	26
General	Contributors to the Old General scheme and to the New General scheme, excluding contributors who are members of the Cook Islands, Niue and Tokelau Public Services.	7,630	1,761
Islands	Contributors to the Old General scheme and to the New General scheme who are members of the Cook Islands, Niue and Tokelau Public Services.	473	158
Police	Contributors to the Police scheme	253	155
Prisons Service	Contributors to the Prisons Service scheme	72	11
Judges and Solicitor-General	Contributors to the Judges and Solicitor-General scheme and to the Associate Judges scheme.	15	-
Parliamentary	Contributors to the Parliamentary scheme	13	-
Pensioners	Members who are receiving pensions from the scheme, including spouses and children for whom entitlement arises from the death of a member either before or after retirement	46,839	
Deferred Pensioners	Members for whom the entitlement to a pension has been established, either as a result of leaving employment or of ceasing to contribute while remaining in employment, but who have not as yet begun to receive any payments	5,875	

1.10 Included in the contributor groups are a number of members, referred to as inactive members, who were recorded as at the valuation date as having ceased to make contributions, but for whom the possibility exists that a benefit entitlement will become available at some time. These members, dealt with in this report in two separate groups, are referred to as inactive contributors. The first group, Inactive(1) contributors as summarised above, are contributors where salary and/or contribution data is available so as to allow a reasonable estimate to be made of the accrued liability in respect of such members. The second group, Inactive(2) contributors, comprises 2,771 contributors for whom neither salary nor contribution data are available.

1.11 Males and females within each contributor group are treated separately only in respect of expected mortality experience.

1.12 Section 95(2) of the Act requires a determination of employer contribution rates using an approach that takes into account membership characteristics where contributors are paid from money which is not public money. Employers of such contributors are referred to as funding employers in this report.

1.13 Contributors of funding employers are all in the General schemes. I concur with earlier reports where it has been noted that it would be difficult to determine a credible basis for projecting benefits and contributions for sub-groups of the General schemes that would differ materially from that of the group taken as a whole, with the possible exception of salary growth.

1.14 To attribute funding employer costs by reference to member characteristics, an initial investigation was made as at 30 June 1998, which derived employer contribution rates within the General schemes by reference to gender and to five age bands (making 10 groups in all).

1.15 Having been advised that this approach meets the requirements of Section 95(2), I have used this approach to determine employer contribution rates.

SECTION 2:

THE PURPOSE OF THE REPORT

2.1 In general terms, Section 94 (2)(a) of the Act requires me to show the state of the Fund as at 30 June 2011.

2.2 More specifically, I am required to calculate the amounts that will be required by the Fund to meet the benefits falling due from the Fund over the next few years without having recourse to the actuarial reserves arising from member contributions to the Fund.

2.3 Section 95(1) of the Act, in setting out the basis of determination of the amount required by way of subsidy of benefits from the Fund, refers to payments from the assets of the Fund and requires me to give a certificate as to the share of benefit payments to be met from the assets of the Fund (the **Fund Share**).

2.4 Section 95(1) also refers to payments from the funding employers in accordance with Section 95(2). One of the purposes of this report is therefore to establish the basis on which I should give my certificate as to the payments to be made by the funding employers. The amount which I am required to determine in terms of Section 95(2), is:

"... the amount by which the contributions estimated to be paid during that year by those contributors is less than the amount certified by the Government Actuary as the total amount of contributions that would require to be so paid if the contributions of contributors provided the total cost of the benefits to which the contributors may become entitled under this Act ..."

2.5 In determining what should be provided by way of a report on the state of the Fund, I have had regard to the requirements of Professional Standard No. 2 of the New Zealand Society of Actuaries.

2.6 I have therefore included comment in relation to the assets of the Fund. I have also included recommendations as to appropriate employer contribution rates in respect of the non-funding employers, noting the constraints that in practice will apply when these recommendations are being considered.

SECTION 3:
THE VALUATION METHOD

3.1 To meet the requirements of the Act and to investigate the financial state of the Fund, I have made a projection of the expected future benefits payable from the Fund and future contributions payable to the Fund. These projected cash flows were then discounted in order to arrive at present values.

3.2 The steps in the determination of the present values are:

- project future levels of salaries in respect of contributors,
- from that projection, project future levels of contributions and indexed final salaries,
- calculate the benefit payable in various circumstances based on those projections,
- project future pension benefits and increases in the amount of such benefits from cost of living increases,
- determine a probability for each event that gives rise to a payment in each future year,
- calculate cash flows in respect of benefit payments and contributions, by combining projected benefit amounts with the probability of payment, and
- discount the cash flows to achieve the present values.

3.3 To carry out these calculations, demographic and financial assumptions are needed.

3.4 Demographic assumptions relate to the expected future rates of mortality, retirement, withdrawal, ill health retirement, and proportions married. These rates are generally related to age; or age may be used as a proxy for other determinants, such as duration of membership. Other demographic assumptions relate to member choices of the form in which benefits are taken.

3.5 Financial assumptions relate to assumed future rates of price inflation as measured by the Consumer Price Index (all groups) - **CPI** - to which pensions in payment and final indexed salary are linked, salary growth including age related effects, and the rate at which projected benefit payments and contributions are to be discounted so as to arrive at present values. The adjustment to pensions in payment, which follows the increase in the CPI occurring in the preceding year, in effect lags one year behind the projected CPI increases.

3.6 Assumptions may be varied for each future year. For example, a certain level of withdrawal could be assumed for an age in one year and a different level for that same age in another year. For the purposes of the “going concern” valuation results in this report, I do not consider it to be useful to make any such variation, in either the demographic or financial assumptions. For the purposes of Crown Account reporting however, I have incorporated a variation in the discount rates, as adherence to a Generally Accepted Accounting Practice standard requires the use of rates that are derived from a yield curve analysis.

3.7 The expenses of the administration of the Fund are currently met in part by the funding employers, with the balance paid by the Crown as provided by Section 15E of the Act. I have therefore incorporated an allowance for future expenses of administration in the valuation calculations.

3.8 It should be noted that the actual cost to the Crown of providing benefits will be known only after all benefits have been paid. The actual cost is, effectively, the total amount of benefit payments to be made together with the expenses of administering the Fund, offset by member contributions, existing Fund assets, investment earnings on the assets and contributions from the funding employers.

3.9 Appendix A sets out in greater detail the valuation process in respect of each of the examinations required for this report. The method used for determining the employer contribution rates is the Attained Age Method and the notional funding process needed to give full effect to this method is also described in Appendix A.

SECTION 4:

BENEFITS PROVIDED BY THE FUND

4.1 The benefits payable from the Fund are set out in the relevant parts of the Act, as subsequently amended. In addition, some amending Acts do not amend provisions of the principal Act, nor add nor delete provisions of the Act, but are to be read in conjunction with the Act. In particular, the Government Superannuation Fund Amendment Act 1969 sets out the mechanism for the cost of living increases. The last amendment was the Government Superannuation Fund Amendment Act 1969 Amendment Act 2010 No 28.

4.2 A general description of the benefits and conditions of the schemes covered by this report is given below. More detail is given in Appendix B of this report, but because of the complexity of some of the options available to members, the descriptions are necessarily summarised. Explanatory booklets may be obtained from the Authority's website – *www.gsfa.govt.nz* – or from the Fund administrator on request at:

GSF Schemes Administration
Datacom Employer Services Limited
PO Box 3614
WELLINGTON 6140

4.3 While the benefit provisions differ from one scheme to another, many features are similar. The schemes are of the final-salary type. The retiring allowance is equal to a percentage of final average salary for each year of pensionable service. "Final average salary" is the average salary for the five years prior to retirement, adjusted to allow for inflation during that period as measured by changes in the CPI, or the earnings of the contributor in the 12 month period immediately prior to retirement, whichever is the lesser.

4.4 Membership of the General schemes was, for the most part, voluntary and the length of pensionable service linked to the period of contribution payments. The other schemes were compulsory, although the Prisons Service scheme became non compulsory after the schemes were closed to new members on 30 June 1992. The length of pensionable service is related to the period of employment, though generally rated up by 25% for members of the Prisons Service and Police schemes.

4.5 The retiring allowance is payable without adjustment from a nominal retiring age which is:

- General schemes: from age 60,
- Prisons Service scheme: from age 58,
- Police Scheme: from age 55,
- Armed Forces scheme: after 20 years of service,
- Judges and Solicitor-General schemes from age 68, and
- Parliamentary scheme from 9 years of service.

Members can continue to accrue benefits past the above retiring ages. For the schemes for which entitlement is age-related, members who have retired from Government service can receive benefits from age 50 onwards with appropriate adjustments, subject to completion of 10 years contributory service.

4.6 Since April 2009, all retiring allowances are adjusted to reflect the full increase in the cost of living during retirement, as measured by the CPI. Upon the death of a pensioner, an annuity of up to 50% of the retiring allowance payable at the time of death is available to a surviving spouse.

4.7 At the time of retirement a contributor can elect to surrender up to one quarter of the retiring allowance in return for a lump sum of generally twelve times the amount surrendered. In the Armed Forces scheme it is also possible to completely surrender all pension payments due until age 55 or 60 in return for a lump sum.

4.8 The principal change to benefits since the closure of the schemes to new entrants on 1 July 1992 (except for Islands members of the General schemes, where closure occurred on 9 June 1995 or on 21 October 1995) has been to allow members to cease contributions, and by leaving their contributions in the Fund, to be entitled to a deferred pension or deferred lump sum in accordance with regulations made under section 97 of the Act. That change was effected by the Government Superannuation Fund Amendment Act 1995.

4.9 Regulations made by the Government Superannuation Fund (Ceasing Contributions) Regulations 1995, allow the contributor a deferred pension if membership up to the date of cessation is at least 10 years (or 20 years in the case of Armed Forces members), based on conditions at the cessation date, but increased by the rise in the CPI. Alternatively, on cessation the contributor can take a lump sum based on the deferred pension calculation.

SECTION 5:
MEMBERSHIP DATA

5.1 Membership data was provided by the Fund administrator as follows:

- contributors in force as at 30 June 2011, showing date of birth, date of commencement of continuous membership, annual salary as at 30 June 2011, contributions up to 30 June 2011 divided pre and post 1 May 1985, part-time percentage (if any), scheme code, employer code, suspension code, and gender code,
- contributor exits and entries in the year ending 30 June 2011, the exits showing date of exit, mode of exit, lump sum paid (if any), basic pension entitlement (if any), and commuted pension lump sum (if any),
- pensioners and deferred pensioners in force as at 30 June 2011, showing date of commencement of pension, amount of pension, pension type, pensioner date of birth, cost of living percentage applicable, and gender, and
- pensioner exits and entries in the year ending 30 June 2011.

5.2 In respect of the data provided, some queries arose which were discussed with the Fund administrator and corrections made where appropriate. The salary figure for part time contributors was taken to be the full-time equivalent, and reduced according to the part time percentage shown. In situations where investigation showed some discrepancies, they were referred to the Fund administrator. Any discrepancies remaining are, in my view, unlikely to have a significant effect on the valuation results.

5.3 The Fund administrator has advised that appropriate salary information and contribution information in respect of all of the Islands contributors to the General schemes has been received.

5.4 Contributor data was reconciled between that at 1 July 2010 ("2010") and that at 30 June 2011 ("2011") as follows, where:

- "Actives" are contributors for whom contributions were being received,
- "Entrants" are contributors who became members after 30 June 2010 (generally understood to be reinstatements),
- "Exits" are those contributors who had ceased to be members after 30 June 2010 and had received a benefit from the Fund,
- "Inactives(1)" are those former contributors who have ceased to be members and have not received a benefit from the Fund, but for whom salary or contribution information is available, and
- "Inactives(2)" are those former contributors who have ceased to be members and have not received a benefit from the Fund, but for whom no salary or contribution information is available.

From	Number	To	Number
Actives 2010	9,567	Actives 2011	8,460
		Inactives(1) 2011	99
		Exits	1,007
		Inactives(2) 2011	1
Inactives(1) 2010	2,237	Actives 2011	88
		Inactives(1) 2011	2,008
		Exits	141
Entrants	0	Actives 2011	0
		Inactives(1) 2011	0
		Exits	0
Inactives(2) 2010	2,783	Actives 2011	3
		Inactives(1) 2011	4
		Exits	6
		Inactives(2) 2011	2,770

To	Number	From	Number
Actives 2011	8,551	Actives 2010	8,460
		Inactives(1) 2010	88
		Entrants	0
		Inactives(2) 2010	3
Inactives(1) 2011	2,111	Actives 2010	99
		Inactives(1) 2010	2,008
		Entrants	0
		Inactives(2) 2010	4
Exits	1,154	Actives 2010	1,007
		Inactives(1) 2010	141
		Entrants	0
		Inactives(2) 2010	6
Inactives(2) 2011	2,771	Inactives(2) 2010	2,770
		Actives 2010	1

5.5 The Inactives(2) group is principally in respect of contributors who ceased active membership prior to full computerisation of Fund member records, but includes contributors for whom no reliable valuation data is available.

5.6 Pensioner data, including deferred pensioner data, was reconciled between 2010 and 2011 as given in the following table. Some pensioner exits will give rise to one or more dependant pensions and, through the operation of the Property (Relationship) Act and section 91B of the Act, some pensions are split.

Number	**Number**
Pensioners at 30 June 2010	52,804
Less pensioners ceasing to receive pensions during the year	(1,992)
Plus new pensions commencing during the year	1,902
Pensioners at 30 June 2011	**52,714**

5.7 In my view, the data used for the purpose of this report are sufficiently accurate for the financial state of the Fund to be reliably ascertained. A summary of the data used for the valuation as at 30 June 2011 is given in Appendix C.

SECTION 6:

FUND ACCOUNTS AND ASSETS

6.1 The value of the assets of the Fund, as at the year ending 30 June 2011, has been taken from the audited financial statements included in the Report of the Fund for the year ended 30 June 2011. The assets have been taken at the market values, as reported in those financial statements. There are no contingent liabilities. As it is highly unlikely that the Fund will be wound up, no allowance has been made for winding up costs. I consider that the assumptions made in determining the rate of discount for establishing present values under the statutory basis are consistent with taking market values for the Fund assets.

6.2 The transactions of the Fund for the year ending 30 June 2011, together with the prior year figures for comparative purposes but excluding the Parliamentary scheme and the, Judges and Solicitor-General schemes, have been taken from the Report of the Fund for the year ended 30 June 2011. Those transactions are summarised in the following table, with prior year's figures being shown for comparative purposes. All amounts are in $000. I am confident of the reliability of the figures for the purposes of this report:

Year ending 30 June:	**2007**	**2008**	**2009**	**2010**	**2011**
Opening balances	3,793,114	4,008,407	3,574,152	2,804,083	2,946,576
Plus:					
Member contributions	72,603	68,405	63,746	59,852	54,354
Funding employers	14,529	14,559	12,704	13,448	23,086
Government subsidies	638,745	691,057	600,599	592,577	644,086
Investment income	553,397	(210,124)	(672,740)	383,319	419,820
Less:					
Pensions paid	662,577	701,550	704,913	728,612	756,124
Commutations	73,483	94,935	73,699	72,265	80,800
Refunds	135,283	150,522	84,274	6,622	6,845
Payments on death	346	326	921	534	753
Tax provision	198,567	50,818	(89,429)	98,670	84,242
Closing balances	**4,008,407**	**3,574,152**	**2,804,083**	**2,946,576**	**3,159,158**

Note: Figures might not add due to rounding

6.3 The after tax rate of return on the investments of the Fund is given in the following table, again with prior years' figures being shown for comparative purposes:

Year ending 30 June:	**2007**	**2008**	**2009**	**2010**	**2011**
Net of tax return	9.54%	-6.65%	-16.76%	10.42%	11.63%

6.4 The rates of return have been calculated using the formula 2I/(A+B-I), where I is investment income less tax provision, A is the opening balance, and B is the closing balance, for each year.

6.5 The investment assumption contained in the 2010 valuation (on the statutory basis) was that the annual after tax investment return on assets would exceed the CPI growth by 3.75%. As the actual CPI growth was 5.28% in the 12 months to 30 June 2011, the achieved average rate of return of 11.63% in the year was 2.60% above the expected rate.

6.6 The New Zealand Society of Actuaries Professional Standard No. 2 requires the actuary to comment as to whether the assets as a whole are suitable for the purposes of the scheme, to comment on the investment strategy and to comment on the appropriateness of the investment strategy in relation to the form and incidence of the expected benefit payments.

6.7 The investments of the Fund as at 30 June 2011 were as given in the following table, where the 30 June 2010 proportion of assets in each category is also given for comparative purposes:

Fund Assets	**$000**	**Proportion of Fund Assets**	
		30 Jun 2011	**30 Jun 2010**
NZ equities	340,210	10.7%	9.7%
International equities	1,246,519	39.5	43.0%
NZ Government bonds	0	0.0%	0.0%
International fixed interest	706,556	22.4%	26.3%
State/Crown-owned/Government risk	0	0.0%	0.0%
Other bonds and securities	0	0.0%	0.0%
Property	150,398	4.8%	5.7%
Absolute return	320,352	10.1%	11.8%
Insurance linked assets	108,182	3.4%	n/a
Commodity futures	104,425	3.3%	2.8%
Short-term investments and cash	182,517	5.8%	0.7%
Total assets	**3,159,158**	**100.0%**	**100.0%**

6.8 However, in a number of significant ways the operation of the Fund is not strictly comparable with that of a fully funded private sector scheme. In particular the investment policy in respect of the assets of the Fund, which was formerly the subject of Guidelines issued by the Minister, was in October 2001 placed in the hands of the Authority. The Authority, under the Government Superannuation Fund Amendment Act 2001, was made responsible for investing the assets in a prudent, commercial manner.

6.9 The Authority has determined that the long term strategic asset allocation for the investments of the Fund from 1 July 2011 will be:

Asset Class	Proportion
Australasian equities	9.3%
International equities	43.0%
Property	5.0%
Fixed interest	24.5%
Commodities	4.2%
Global tactical asset allocation	3.0%
Insurance-linked assets	4.0%
Multi asset class	7.0%
Total	100.0%

6.10 In my opinion, the assets as a whole are suitable for the purposes of the Fund and the long term strategy determined by the Authority is an appropriate investment strategy given the form and incidence of the expected benefit payments of the Fund. I am not aware of any material risks posed by the assets.

SECTION 7:

INVESTIGATION OF THE FUND DEMOGRAPHIC EXPERIENCE

7.1 The experience of the Fund for the period from 1 July 2010 up to 30 June 2011 was investigated separately in respect of salary growth, mortality, retirement, ill-health retirement, and withdrawals. The purpose of the investigations was to examine the actual experience in the light of the assumptions used for the previous valuation as at 30 June 2010, and to ascertain whether any changes were needed for the valuation as at 30 June 2011. Summary details of the outcomes of the investigation are shown in Appendix D.

7.2 In relation to in-service ill-health retirement and withdrawals, no differences were found that were considered to require attention at this valuation, although some variation was present as would be expected. Consequently, the assumptions used for those parameters in the 2011 valuation are the same as were used in 2010.

7.3 The age-related salary growth scale used in the previous valuation was compared to actual experience and also found to be appropriate for use in the 2011 valuation.

7.4 The valuation requires assumptions to be made as to the form in which benefits are taken, particularly the choice as to whether to commute part of a pension entitlement for a lump sum. The current investigation showed that the 2010 assumptions as to the percentage commuted remains appropriate for each scheme, and so they have been retained for the 2011 valuation.

7.5 The payments made on exit from the Fund to those contributors classified as Inactive, but for whom valuation data was available, has again been investigated. This has shown that the adjustment made at the previous valuation, to ensure that the method used to value these contributors was generally reasonable, remains appropriate.

7.6 The mortality assumption for contributors (which was updated for the 2007 valuation) and the pensioner mortality (which was updated for the 2005 valuation) were still considered appropriate.

7.7 The early retirement pattern for the General schemes were updated for the 2005 valuation. The revised assumptions were considered appropriate for this year's valuation.

7.8 The assumed maximum age at which all contributors retire from the General schemes was increased to 69 to reflect the increasing number of contributors who retire after age 65. This assumption is being actively monitored as retirement habits change.

7.9 An allowance for future mortality improvement has been made by way of a 0.25% deduction in the discount rate. This is broadly equivalent to a mortality improvement of 1% per annum for 20 years. Historically, improvements in mortality, for the GSF have been in the range of 1%-2% per annum. Views by industry experts on whether future improvements will continue at historical levels differ. I believe it is not unreasonable to adopt a level of improvement at the lower end of the range.

7.10 This will be the last valuation performed by the Government Actuary and the current valuation system will be obsolete. To implement a 1% per annum improvement would have require extensive upgrading and testing. The new actuary will review the mortality improvement assumption and a more appropriate reserving approach possible with a new valuation system.

SECTION 8:
VALUATION ASSUMPTIONS

8.1 The demographic assumptions used in the valuation follow directly from the most recent experience investigation.

8.2 In respect of other assumptions, it has been assumed, as was the case in the last valuation and after confirmation from investigation of the experience that it is appropriate to do so, that:

- all Island and Prisons Service group members becoming entitled to a retirement or ill health retirement pension take the maximum lump sum available, and
- of members withdrawing with 10 or more years' contributory membership, 20% elect a deferred pension and 80% a refund of contributions.

8.3 The demographic assumptions required for the current valuation are summarised in Appendix E.

8.4 The purposes of the valuation require, in my judgement, calculations using two distinct valuation financial assumption sets.

Statutory basis

8.5 The first basis of the valuations provides a presentation of the financial condition of the Fund and a determination of employer contribution rates on a "going concern" basis. For this valuation, realistic best estimate valuation assumptions are required, taking into account expected returns on assets. It is implicit that the risk of diversification is being underwritten by the Crown and by employers, as they are the entities that will benefit from expected higher returns and they stand behind the benefit guarantees given to members.

8.6 Funding employers in particular will wish to see realistic best estimate assumptions employed in the determination of employer contribution rates, as each will have different time horizons depending on the characteristics of their contributing employees.

8.7 For valuation on the "going concern" basis, I have assumed that the investments of the Fund will be allocated within the year following the valuation to match the long-term strategic allocation of the Fund, determined as appropriate by the Authority. Consequently, the investment return assumptions in the valuation recognise the longer term aspect of the investment allocations. In reviewing the investment return projections as at 30 June 2011, I have also taken into consideration views on equity markets. I realise that a range of results is possible, depending on elements such as the weight to place on the different views being taken as to short term and long term equity returns.

8.8 The costs in respect of administration in relation to existing contributors, including the costs of paying future pensions to them, are to be met by funding employers and the Crown. The expenses in respect of the funding employers are incorporated in the calculation of the employer contribution rates. The Crown meets its expense obligations directly.

8.9 I have calculated the expected returns from the current strategic asset allocation, assuming the current tax basis. The result of this calculation has resulted in an increased expectation of 6.25% per annum after tax (6.0% last year).

8.10 I believe it is appropriate to increase the long term valuation rate of interest for the Statutory basis to 6.25% after tax. After allowing for the approach adopted for allowing for future mortality improvement (a 0.25% deduction to the discount rate), the final discount rate used is 6.0% per annum.

8.11 For the other major financial assumptions, I have placed reliance on the Treasury determination that price inflation will be at the rate of 3.0% per annum next year before settling on the long term rate of 2.5% p.a. I have assumed long-term general salary growth will be at the rate of 3.0% per annum before allowance for promotional salary effects.

8.12 The basis incorporating these rates is referred to as the **Statutory** basis.

8.13 The greatest effect in terms of the financial assumptions is the difference between the net after tax investment return assumed and the rate of price inflation assumed (which directly affects pension increases and salary growth assumptions). Were I to have assumed long term price inflation of 2.25% pa instead of 2.5% pa, and also to have decreased each of the assumed rates of salary growth, pension increase and valuation interest rates by 0.25% pa, then the net effect on the liabilities would be minimal. Thus the weakening of the valuation rate of interest by 0.25% has a similar effect on liabilities to decreasing the long–term price inflation by 0.25%.

Fund Share Basis

8.14 The second basis of the valuations is required to calculate the total liabilities and the value of future member contributions for the purpose of determining the Fund Share of Benefits ratio. That ratio is the proportion of the benefits payable in each year that is to be met from the assets of the Fund, with the balance being met by the Crown after taking into account funding employer contributions.

8.15 For the Crown Accounts, the actuarial liabilities are calculated in accordance with a "fair value" accounting standard, requiring a valuation discount rate calculated by reference to market prices of Government stock as at the valuation date. For consistency, the liabilities for calculating the amounts to be paid by the Crown from time to time should be determined following the same approach.

8.16 Consequently, for the valuation on this basis, the after tax rates of discount for valuation have been derived from consideration of the after tax yields implicit in market prices of Government stock at 30 June 2011. I have adjusted these rates to allow for future mortality improvement (a 0.25% deduction to the discount rates).

8.17 The costs of administration of the Fund are substantially returned by way of a Government subsidy to the Fund with the remainder by way of the funding employers. For that reason, no reduction in the after tax rates of discount to take account of any administration expenses has been made in the calculations made to determine the Fund Share of Benefits ratio.

8.18 For the other major financial assumptions, I have placed reliance on the Treasury determination that price inflation will be at the rate of 3.0% per annum next year before settling on the long term rate of 2.5% per annum. I have assumed general salary growth of 3.0% pa before allowance for promotional salary effects.

8.19 If the liabilities were to be determined on the basis of a best estimate of the net of tax investment return that is expected to be earned on Fund assets, then the future expected benefit of diversification would be capitalised immediately. This would be likely to cause greater volatility in the Fund Share of Benefits ratio from time to time.

8.20 Accordingly, for this valuation, changes to the Fund Share of Benefits ratio as a result of asset diversification are assumed to emerge over time, through recognition of higher asset values as and when these occur.

8.21 The basis incorporating these rates is referred to as the **Fund Share** basis.

Both bases

8.22 For the inactive members within each contributor group for whom details of salaries and contributions were supplied, the liability has been determined as either:

- the value of the accrued withdrawal benefit, if no deferred pension could be valued, or
- the value of the accrued deferred pension, assuming indexing in deferral, maximum commutation and commencement of the pension at the later of age 51 and actual age, but with no allowance for mortality in deferral.

8.23 This approach may tend to over-estimate the liability, as it may be expected that a not inconsiderable number of members with over 10 years contributory membership will take the less valuable return of contributions rather than the significantly more valuable deferred pension option.

8.24 Records were supplied for 2,771 inactive members for whom no salary or contributions data was available. For these members, average contributory service is low and the great majority have been in this status since 1992 or earlier. They consist principally of members who ceased to contribute prior to computerisation of administration records, and for whom, if they should apply for a benefit, records will have to be obtained from their employer as at the date of ceasing to contribute. As only a very crude estimate of the liability in respect of such members could be made, this liability has been taken as falling within the margin taken for the valuation of the liabilities of the other inactive members.

8.25 The financial assumptions used in the valuations are summarised in Appendix F.

SECTION 9:
RESULTS

9.1 The valuation balance sheet in respect of each basis, where the Statutory valuation results are for the going concern basis, and the Fund Share valuation results are consistent with the approach taken in determining Crown Account valuation discount rates, is given below. It should be noted that the liabilities in respect of the Judges and Solicitor-General schemes and the Parliamentary scheme, including pension beneficiaries originating from those schemes, are not included in the Fund Share valuation.

Liabilities as at 30 June 2011	**Statutory valuation $million**	**Fund Share valuation $million**
Total Liabilities:		
Present value of benefits payable in respect of:		
Armed Forces scheme contributors	37	50
General schemes contributors (excluding Islands)	2,991	4,244
General schemes contributors (Islands only)	48	71
Police scheme contributors	239	328
Prisons Service scheme contributors	24	31
Judges and Solicitor-General schemes	29	37
Parliamentary scheme	11	15
Pensioners	8,736	10,826
Deferred pensioners	658	1,031
Total Liabilities	**12,773**	**16,633**
Assets:		
Value of Fund assets	3,159	3,159
Present value of contributions payable by:		
Armed Forces scheme contributors	1	1
General schemes contributors (excluding Islands)	244	277
General schemes contributors (Islands only)	5	6
Police scheme contributors	7	8
Prisons Service scheme contributors	0	1
Judges and Solicitor-General schemes	0	0
Parliamentary scheme	1	1
Total Assets	**3,418**	**3,453**
Present value of amount to be provided by way of Government subsidies and funding employer contributions	9,356	13,181
Fund Share of Benefits		21.1%

Notes:
1 Figures might not add due to rounding
2 The Fund Share of Benefits calculation excludes the Judges & Solicitor-General schemes and the Parliamentary scheme which are funded on a pay as you go basis. The adjustment is $295 million in respect of the liability and $1million in respect of the contributions.
3 The liability amounts shown include the allowance made for future mortality improvement.

9.2 The Statutory valuation results show liabilities that are slightly lower than those that would have been brought out by application of the valuation basis adopted for the valuation as at 30 June 2010. A summary reconciliation between the expected valuation results and the actual valuation results is given in Section 10 of this report.

9.3 The Fund Share of Benefits brought out by the 2010 valuation was determined as 20.0%. The 30 June 2011 Fund Share valuation results show that the 20.0% share is no longer appropriate, as the Fund Share of Benefits has increased to 21.1%. This is primarily due to the good investment return. The rate will be reviewed again as part of the valuation processes as at 30 June 2012.

9.4 The results in respect of the unfunded past service liability on each basis are shown in the table below:

Liabilities as at 30 June 2011	**Statutory valuation $million**	**Fund Share valuation $million**
Past Service Liabilities:		
Present value of benefits payable, attributable to membership up to the valuation date, in respect of:		
Armed Forces scheme contributors	34	46
General schemes contributors (excluding Islands)	2,511	3,521
General schemes contributors (Islands only)	38	55
Police scheme contributors	219	298
Prisons Service scheme contributors	23	30
Judges and Solicitor-General schemes	26	33
Parliamentary scheme	10	13
Pensioners	8,736	10,826
Deferred pensioners	658	1,031
Total Past Service Liabilities	**12,255**	**15,853**
Value of Fund Assets	3,159	3,159
Unfunded Past Service Liability	**9,096**	**12,694**

Notes:

1 Figures might not add due to rounding

2 The liability amounts shown include the allowance made for future mortality improvement.

9.5 It is unlikely that the position in respect of past service (accrued benefits) will change significantly before the next valuation (due 30 June 2012), unless the basis of funding is amended.

9.6 A projection of the amounts required by way of Government subsidy under the Fund Share basis, before any offset for contributions by funding employers, and excluding any payable, has been made for the next five years assuming that experience will match the valuation assumptions. The results of the projection are given in the following table:

Year ending 30 June	Projected subsidy $million
2012	657
2013	654
2014	661
2015	669
2016	679

9.7 Note that the projected subsidy figures and the Unfunded Past Service Liability results shown on the Fund Share basis are not directly comparable to the results shown in the Crown Accounts as at 30 June 2011, as the liabilities in respect of the Fund Share basis are calculated on a net of tax basis (and exclude the Judges and Solicitor-General schemes and the Parliamentary scheme) rather than the pre-tax basis used for the Crown Accounts.

9.8 The method adopted for derivation of employer contribution rates, expressed as a percentage of contributor salaries and inclusive of Employer Superannuation Contribution Tax, is set out in Appendix A.

9.9 The following sections of the report discuss the results for all groups, including the age and gender bands of the General schemes, noting that the funding employers in respect of which contribution rates are to be certified in accordance with section 95(2) of the Act are the employers of contributors in the Islands group of the General schemes, and the employers of those contributors in the General schemes who are paid other than out of public money.

9.10 The Fund has been closed since 1992 (except for the Islands group of the General schemes which closed in 1995) and the number of contributors has decreased significantly. As introduced at last year's valuation the contribution rates recommended are based on the standard contribution rate which is the average rate per group to fund the future benefits over the remaining working lifetime of the members of that group. The next valuation, due as at 30 June 2012, will review again the effects of the global credit crisis on the valuation of the assets and the implications for the contribution rates.

Armed Forces scheme

9.11 The employer contribution rate for this scheme has been maintained at 25.1% of contributor salaries from 30 June 2012.

General schemes

9.12 The employer contribution rate for these schemes (in respect of non-funding employers) has been maintained at 10.7% of contributor salaries from 30 June 2012.

Islands group of the General schemes

9.13 The employer contribution rate for this group of the General schemes has been maintained at 8.0% of contributor salaries from 30 June 2012.

Police scheme

9.14 The employer contribution rate for this scheme has been maintained at 19.1% of contributor salaries from 30 June 2012.

Prisons Service scheme

9.15 The employer contribution rate for this scheme was reduced to 0% following the valuation as at 30 June 2000 and the actuarial surplus on the notional funding approach has continued to be substantial. A 0% rate continues to be more than sufficient to meet the expected future costs of the scheme without any further contributions by either the employer or members.

General schemes: age and gender banding

9.16 The age and gender bands for the General schemes have been increased. The employer contribution rates for each group are unchanged at the level recommended in the valuation as at 30 June 2010.

Contribution group	Age band	Males	Females
Group 1	Up to age 53	10.9%	11.3%
Group 2	From age 54 to age 58	12.9%	13.6%
Group 3	From age 59 to age 63	14.2%	15.0%
Group 4	From age 64 to age 68	15.3%	16.1%
Group 5	Age 69 and over	0.0%	0.0%

9.17 Application of these rates to the affected employer groups may result in a change in contribution rate required as a result of movements in membership. In this regard, stability in employer contribution rates is desirable and minor rate changes are unlikely to be material overall for the funding employers. Accordingly, I consider it remains appropriate to ignore any change which differs by 0.3% or less from the previous valuation.

Vested benefits

9.18 The New Zealand Society of Actuaries Professional Standard requires a comparison of value placed on the vested benefits with the value placed on the assets. Vested benefits are benefits which are not conditional on continued membership of the Fund. This comparison is a form of solvency testing, showing the adequacy of the assets to support the minimum benefit requirements if a scheme were to be wound up.

9.19 Vested benefits are calculated on the Statutory basis as the amount payable in the event that all contributors ceased membership as at the valuation date. For this purpose, I have assumed that:

- for all schemes other than the Armed Forces scheme, contributors with at least 10 years contributory service will receive a deferred pension commencing at age 50 if they are currently under age 50, otherwise an immediate pension,
- for all schemes other than the Armed Forces scheme, contributors with less than 10 years contributory service will receive an immediate withdrawal benefit,
- for contributors in the Armed Forces scheme having completed 20 years contributory service, immediate retirement will occur, and
- for contributors in the Armed Forces scheme who have less than 20 years contributory service, an immediate withdrawal benefit will become payable.

9.20 The vested benefit values are shown in the following table, where contributors include the inactive members. The ratio of vested benefits to past service liabilities is also shown:

Scheme/Group	Vested benefits $million	As a percentage of past service liability
Contributors:		
Armed Forces scheme	9	27%
General schemes (excluding Islands)	3141	125%
Islands group of General schemes	42	109%
Police scheme	204	93%
Prisons Service scheme	24	102%
Judges and Solicitor-General schemes	34	128%
Parliamentary scheme	12	129%
Total Contributors	**3,465**	**121%**
Pensioners:		
Pensioners	8,736	100%
Deferred Pensioners	658	100%
Total Pensioners	**9,394**	**100%**
Grand total	12,859	105%
Less Assets	(3,159)	
Shortfall	9,700	

Note: Due to the mature age profile the vested benefits are very similar to the past service liability.

9.21 For contributors in the Armed Forces scheme, the requirement for 20 years contributory membership prior to entitlement to a retirement benefit has a significant effect in reducing the value of vested benefits. For the other schemes and groups, the majority of members have already completed 10 years contributory service, and would be entitled to a deferred or immediate pension.

9.22 Vested benefits exceed the value placed on the past service liability for General schemes, the Islands group of the General schemes and the Prisons Service scheme contributors principally because the valuation of the Fund as an ongoing entity takes into account probabilities of death, giving rise to a benefit of generally lower actuarial value, and of withdrawal (despite entitlement to a deferred pension), again giving rise to a benefit of significantly lower actuarial value. The position with respect to Police scheme contributors is different in that a significant part of the past service liabilities lies in the potential medical disengagement benefit, which is of generally higher value than a deferred pension.

9.23 The figures given for vested benefits for the General schemes, the Islands group of the General schemes and the Prisons Service scheme contributors can be considered as an upper limit to the overall liability accrued to date for those schemes, and the figures for the Armed Forces scheme and the Police scheme contributors a lower limit for those schemes. The past service liability figures shown earlier, are the best estimate of the liability accrued to date.

9.24 It is unlikely that the position in respect of vested benefits will change significantly before the next valuation (due 30 June 2012), unless the basis of funding is amended.

9.25 The Professional Standard No 2 requires descriptions of the manner in which the assets would be assumed to be allocated on wind-up as well as a summary of the material provisions related to the benefits and contributions of the scheme on wind-up. This has not been considered because of the particular characteristics of the scheme.

SECTION 10:
FINANCIAL RECONCILIATION

10.1 The Statutory valuation results as at 30 June 2011 show asset and liability values that differ from those produced for the Statutory valuation as at 30 June 2010.

10.2 During the one year inter-valuation period, the value of the assets has increased by $212 million and the value of the past service liabilities has decreased by $89 million, as shown in the following table:

	30 June 2010 $ million	30 June 2011 $ million	Change $ million
Value of Assets	2,947	3,159	212
Value of Total Past Service Liabilities	12,344	12,255	(89)

10.3 The table below provides a summary of the movements in the asset values over the past year, showing first the expected movements then the experience gains/losses (the differences between the actual and the expected movements) between 30 June 2010 and 30 June 2011:

Assets	$ million	$ million
Assets as at 30 June 2010		**2,947**
Expected movements:		
Investment return	184	
Benefit payments	(848)	
Contributions	724	
Subtotal		**60**
Expected Assets end of year		**3,047**
Experience gains/losses:		
Investment return	152	
Benefit payments	(15)	
Contributions	16	
Subtotal		152
Assets as at 30 June 2011		**3,159**

Note: Figures might not add due to rounding.

10.4 The expected investment return on the assets is the investment income that would have been achieved on the actual assets of the Fund if the investment returns had been at the 6.0% rate assumed in the 2010 Statutory valuation. The expected benefit payments and expected contributions are the amounts that would have been recorded if the 2010 Statutory valuation assumptions had been realised over the year.

10.5 The experience gains/losses show the extent to which actual returns, payments and contributions have differed from those assumed. Of most significance in the year, the Fund recorded an investment return surplus of $152 million, being the amount by which the actual investment gain of $336 million exceeded the expected investment return of $184 million.

10.6 The table below provides a summary of the movements in the liability values over the past year, showing first the expected movements then the experience variances between 30 June 2010 and 30 June 2011:

Liabilities	**$ million**	**$ million**
Total liabilities as at 30 June 2010		12,344
Expected movements:		
Service cost	110	
Interest cost	772	
Benefit payments/contributions	(848)	
Sub total		34
Expected liabilities end of year		12,378
Experience gains/losses	(174)	
Changes in assumptions	51	
		(123)
Total liabilities as at 30 June 2011		12,255

Note: Figures might not add due to rounding.

10.7 The expected service cost is the effect of the additional benefits provided by the additional service since the last valuation date and the effect of the future benefit payments being one year closer to their payment date than at the previous valuation. The expected interest cost is the effect of the investment income lost through the unfunded past service liability having no matching assets. The expected amounts of benefit payments and contributions are the amounts that would have been recorded if the 2010 Statutory valuation assumptions had been realised over the year.

10.8 Experience gains/losses are the effects of the differences between the actual and the planned cashflows and liability movements.

10.9 The changes in assumption for the liabilities in the table above is made up of an increase of 0.50% in the CPI assumption in year 1.

SECTION 11:
CERTIFICATES, RECOMMENDATIONS, STATEMENTS

11.1 There are certain certificates required under the Act that result from this valuation, either directly or indirectly.

11.2 The Professional Standard of the New Zealand Society of Actuaries requires the valuation actuary to make recommendations on the rates of contribution required from employers. In the principal intended area of operation of the Professional Standard, private sector fully funded standalone defined benefit superannuation schemes, the recommendation of the actuary carries substantial weight, and in some instances is mandatory.

11.3 However, in the context of the Fund, my recommendations need be taken to be subject to practical issues relating to considerations of Government policy, such as:

- the effects on departmental appropriations and state sector remuneration, and
- aggregate levels of government expenditure, policy priorities, and the need to maintain fiscal credibility.

11.4 There are certain other recommendations arising from the matters covered by this report. As well, the Professional Standard No 2 requires statements from the actuary in relation to conflict of interest, insurance of death benefits, and responsibility.

11.5 Commentary in respect of the **Fund Share of Benefits:**

The table in section 9.1 of this report, in respect of the valuation carried out using valuation discount rates consistent with the approach taken to valuations for Crown Account purposes, shows a Fund Share proportion of 21.1%. The 2010 valuation resulted in a proportion of 20%. As the valuation result is sensitive to levels of investment return actually earned on the Fund's assets, I consider the Fund Share of Benefits proportion should be increased to 21.1% with effect from 1 July 2012.

11.6 Certification in respect of the **Fund Share of Benefits:**

In terms of section 95(1) of the GSF Act 1956, I certify that the proportion of benefits calculated as being provided by member contributions into the Fund is 21.1%.

11.7 Commentary in respect of the **Funding employer contribution rates:**

My understanding of section 95(2) of the Act is that the amount I am required to certify is that which would apply under generally accepted funding methods which take into account accrued surplus under the notional funding approach required for actuarial balance.

Legal advice in respect of section 95(2) of the Act has also led to rates being specified by age and gender, in order that specific membership characteristics of funding employers be recognised. Those rates have been derived by reference to notional funding for ten groups differentiated by age and gender.

11.8 Certification in respect of the **Funding employer contribution rates:**

In terms of section 95(2) of the Act, I certify that the rate of contribution, as from 1 July 2012, inclusive of Employer Superannuation Contribution Tax, required from those employers of contributors whose salaries are payable out of money that is not public money, is:

- for contributors who are members under Part 2 or Part 2A of the Act, and employed by the Public Services of the Cook Islands, Niue, or Tokelau; 8.0% of contributor salaries, and
- for contributors who are members under Part 2 or Part 2A of the Act, excluding those employed by the Public Services of the Cook Islands, Niue, or Tokelau, the average rate obtained from applying the rates set out in the table below to contributor salaries according to gender and age, provided that if the change to the average rate presently applicable is 0.3% or less, then no change will be required to be made.

Contribution group	Males	Females
Group 1	10.9%	11.3%
Group 2	12.9%	13.6%
Group 3	14.2%	15.0%
Group 4	15.3%	16.1%
Group 5	0.0%	0.0%

11.9 Commentary in respect of the **Non-funding employer contribution rates:**

The non-funding employers (employers of contributors in the Police, Armed Forces, Prisons Service, and the core public service) are required to budget for the superannuation contributions as if such contributions were payable to the Fund. These employer contribution rates do not include an allowance for a share of expenses as this is paid directly. As with the last valuation, I have used the same economic and demographic assumptions for non-funding and funding employers.

11.10 Recommendation in respect of the **Non-funding employer contribution rates:**

I recommend that the current employer contribution rates (for the year to 30 June 2012) are maintained from 1 July 2012:

- the employer contribution rate in respect of the Armed Forces scheme is 25.1% of contributor salaries,
- the employer contribution rate in respect of the General schemes is 10.7% of contributor salaries,
- the employer contribution rate in respect of the Police scheme is 19.1% of contributor salaries, and
- the employer contribution rate in respect of the Prisons Service scheme is 0% of contributor salaries.

11.11 In accordance with my professional obligations as a Fellow of the New Zealand Society of Actuaries, I make the following statements -

- In carrying out this valuation as required by the Act, in my view I have no conflict with other statutory roles conferred on the Government Actuary by any other Acts of Parliament, nor with any other of my professional activities.

- I am not aware of any material developments to the Fund or any external events that have had a material effect on the results of the investigation.
- I am not aware of any material events subsequent to the date of the current investigation other than the continuing volatility of financial markets.
- The Fund has no arrangements for external insurance of the benefits payable on death or disability. Having regard to the size of the Fund and the nature of the benefits payable on death or disability, it is my view that there is no need for the Fund to hold such insurance.
- In completing this report I have had regard to Professional Standard No. 2 - Actuarial Reporting for Superannuation Schemes - issued by the New Zealand Society of Actuaries. The valuation method and the financial, economic and demographic assumptions have been determined in accordance with the professional judgement of the actuary preparing the report.
- I am not aware of any discrepancy between the Act and subsequent Amendments and the practice of the Authority which would have a material bearing on the results of this investigation.

The next valuation will be carried out as at 30th June 2012.

David Benison, B.Sc.(Econ), FNZSA, FIA
Government Actuary

August 2011

APPENDIX A: Valuation processes

A.1 The valuation balance sheet

The valuation balance sheet for each contributor group is obtained by:

- setting the Fund liability as the present value of all benefit payments attributable to past and future membership of the Fund, and
- setting the Fund assets as the value placed on the assets of the Fund for the purposes of the valuation, together with the present value of the contributions expected to be made by current members.

Contributor groups include members who have ceased to contribute, separated into pensioners, deferred pensioners and inactive members.

The difference between the Fund liability and the Fund assets is the present value placed on the amount that will be required to meet the cost of the benefits. Some part of this amount will be met by the funding employers, in relation to benefits to be provided for those of their employees who are members of the Fund.

For the purposes of this report, no figures are given for the Judges and Solicitor-General schemes and the Parliamentary scheme, since these schemes are funded on a pay as you go basis.

A.2 The Fund Share of Benefits

The ratio of the Fund assets to the Fund liability represents the Fund Share of Benefits; that is, the proportion of benefits which may be paid from the assets of the Fund as they fall due. The balance is to be paid by way of subsidy from the Government, offset by funding employers' contributions.

A.3 The level of projected Government subsidy

The share of projected payments from the assets of the Fund is obtained by applying the Fund Share of Benefits ratio to the total projected benefits payable in each year starting from the valuation date, without discounting. The balance of the projected benefits is the amount that will have to be met by Government subsidy, offset by contributions from the funding employers.

A.4 The unfunded past service liability

The proportion of the projected benefits payable that is attributable to membership up to the valuation date may be obtained for each contributing member by multiplying each projected amount by the ratio of membership to the valuation date divided by membership to the date on which the benefit is due to be paid, and adding the value of benefits already crystallised for members who have ceased to contribute. This constitutes the past service liability.

The unfunded past service liability is then the difference between the past service liability and the value placed on the assets.

A.5 Approach to employer contribution rates

The process by which employer contribution rates have been calculated for the purposes of reports subsequent to that of 30 June 1997 is known as the Attained Age Method. In practice, a rate for each contributor scheme or group is calculated as the percentage of member salaries which, when applied over the remaining working lifetime of members, will provide for the cost of member benefits attributable to future service, in conjunction with member contributions. This rate is referred to as the Standard Contribution Rate.

In fully funded superannuation schemes where this method is used, the Standard Contribution Rate is usually adjusted so as to amortise any difference between the assets of the scheme and the value placed on the liability attributable to service prior to the valuation date. The amount of this difference, the actuarial deficit or surplus, is dependent on the valuation assumptions.

Due to the substantially unfunded nature of the Fund, this amortisation process had not been considered practical in any real fashion, and hence no adjustment to the Standard Contribution Rate was envisaged. While the Fund was open to new members, it was reasonable to expect that movement in the Standard Contribution Rate between valuations would be small, particularly where valuation assumptions were held relatively constant.

The cost of benefits generally increases with age - the nearer to retirement, the greater the cost of an additional year of membership. The Standard Contribution Rate is an average rate over the remaining working lifetime of members.

With the Fund closed to new members and the average age of the contributors increasing, a mechanism to incorporate actuarial surplus or deficit became necessary.

A.6 Calculation of employer contribution rates

The process that was established for the determination of employer contribution rates is given below.

1. Establish the present value of the liabilities as at 1 July 1992 (the effective date of closure of the Fund to new entrants) in respect of benefits as at that date attributable to membership up to that date.
2. Set that value as the opening balance of the notional fund.
3. Calculate the Standard Contribution Rate as at 1 July 1992.
4. Calculate the closing balance as at the end of the following year, taking into account:
   - actual benefit payments,
   - actual member contributions,
   - notional employer contributions, based on actual contributor salaries and the net contribution rates effective between the start and the end of the year, and
   - notional investment returns, based on actual and notional cash flows, as well as actual net of tax investment returns in respect of the assumed underlying assets.
5. Value the membership as at the end of the year and establish the notional actuarial surplus or deficit by comparison with the notional fund.

6. Repeat steps 4 to 6 for each subsequent year.

   In practice the following modifications to the process have been required:

   - for any contributor who retires in a particular year, or in respect of whom a pension entitlement crystallises in some other manner during the year, the value of that pension is calculated (using the current valuation basis) and a notional transfer made out of the contributor's group into a single combined pensioners and deferred pensioners group. The notional cash flows are assumed to occur in the middle of the financial year.
   - the requirement for the derived rates to reflect membership characteristics of each funding employer has lead to rates being calculated for each gender, and in five age bands, and
   - as stability in employer contribution rates is considered important, with the volatility of investment returns not all of the actuarial surplus or deficit is taken into account, leaving an appropriate balance to be carried forward to the next year. This situation continued until 2008, then the global credit crisis resulted in a significant weakening for the overall position of the Fund.

   The notional funding exercise had allowed the workings first used for the valuation as at 30 June 2000.

   With the GSF having been closed since 1992, the number of contributors has decreased markedly. This is most noticeable in the Armed Forces scheme (who generally retire after 20 years service), the Police scheme (following the introduction of an option to transfer into the new police scheme allowing lump sum benefits to be taken), and the older age bands for the General schemes.

   Given the significant reduction in the value of assets because of the global credit crisis in 2008 and 2009 and the consequence of the markedly reduced number of contributors it has made it difficult to manage the surplus or deficit in the notional fund whilst maintaining reasonably smooth employer contribution rates. For this reason the notional funding method has been modified so that the Standard Contribution Rate becomes the basis for the actual contribution rate. Because of continued volatility of financial markets, the employer contribution rates for the year commencing 1 July 2011 have been maintained at the same level as the employer contribution rates for the year commencing 1 July 2012.

   The employer contribution rates for the year commencing 1 July 2013 will be reviewed again as part of the actuarial examination of the Fund as at 30 June 2012.

   The Prisons Service scheme continues to have a high surplus and no further employer contributions are currently necessary.

A.7 Employer contribution rate results

The position as at 30 June 2011 reflects fully the effect of the continuing volatility of world markets following the global credit crisis.

The Fund has been closed for many years and the remaining working lifetime of existing members is increasingly limited. This means that the deficits in the schemes may not be able to be eliminated.

The situation will continue to be monitored yearly but given the mature status of the Fund it is likely that the Standard Contribution Rate will remain the basis of the employer contribution for the foreseeable future. The figures are given in $ million.

Principal schemes/ groups:	**Armed Forces**	**General**	**Islands**	**Police**	**Prisons Service**
Notional fund	(33)	2,531	22	157	72
Past service liability	34	2,511	38	219	23
Employer contribution rate %	25.1	10.7	8.0	19.1	0.0

The funding employer contribution rates are also be based on the Standard Contribution Rate.

Age banded General schemes (excluding Islands) (males):	**To 53**	**54 - 58**	**59 - 63**	**64 - 68**	**69+**
Notional fund	478	562	542	174	10
Past service liability	414	548	600	209	12
Employer contribution rate %	10.9	12.9	14.2	15.3	0.0

Age banded General schemes (excluding Islands) (females):	**To 53**	**54 - 58**	**59 - 63**	**64 - 68**	**69+**
Notional fund	228	217	229	86	4
Past service liability	187	219	227	90	4
Employer contribution rate %	11.3	13.6	15.0	16.1	0.0

APPENDIX B: Scheme benefits

This appendix provides a broad summary of features applicable to a new member who joined the schemes prior to their closure (except Pacific Islands).

B.1 Membership

All employees of employers covered by the Fund were required to become contributors, with the exception of employees in those Government employment areas covered by the General schemes. In the latter case, membership was optional. However, the request to join had to have been made before the age of 50 years or within six months of appointment if later.

B.2. Contributions

The percentages of salary required from members as a contribution vary by scheme, as follows:

• Armed Forces Scheme	7.6%
• General Schemes (including Islands)	6.5%
• Police Scheme	7.5%
• Prisons Service Scheme	8.5%
• Judges & Solicitor-General schemes	8.0%
• Parliamentary Scheme	11.0% reducing to 8.0% after 20 years service

B.3. Contributory Service

The main benefits of the schemes are linked to the period of service in respect of which contributions have been paid.

Members of the Police and Prisons Service schemes are entitled to an increase of 25% of their contributory service upon death or retirement, with a maximum adjusted contributory service of 40 years.

B.4. Benefits

B.4.1 Retirement

Normal retirements occur as follows:

• General Schemes	at age 60
• Prisons Service Scheme	at age 58
• Police Scheme	at age 55
• Armed Forces Scheme	20 years of contributory service

The pension factor is 1.05% for each year of contributory service for persons who retire on or after 1 October 1999. (A higher percentage applies to persons who retired prior to that date). This factor is applied to **final average salary** which is the average of salaries in the 5 years before ceasing employment, adjusted to account for the increase in the consumer price index (**CPI**) during the period.

Thus the pension at normal retirement is equal to:

- 1.05% x contributory service x final average salary

Except for the Armed Forces scheme, retirement is allowed from age 50 for a person who has at least 10 years of contributory service (8 years for the Prisons Service scheme). Those who take this option have a reduction in their pension factor of 0.0028% for each month of early retirement in the first five years before normal retirement age. The reduction beyond those 5 years is 0.0014% per month.

For members of the General schemes only, contributory membership past the age of 60 gives rise to an increase in the pension factor of 0.0014% per month to a maximum of five years.

A retirement benefit can also be granted for medical reasons. In such a case the benefit is calculated as if the contributor had fulfilled the normal retirement age criterion at the time of medical retirement so there is no reduction in the pension factor. The benefit is based on service completed at the date of medical retirement.

The pension is adjusted annually to compensate fully for the change in the cost of living as measured by the change in the CPI over the previous year.

B.4.2 Death

Death While A Contributor

A spouse of a contributor has a choice between a lump sum benefit and a pension. The lump sum is the greater of one times salary and the cash benefit available on resignation. The pension is half the allowance payable had the contributor retired for medical reasons at the date of death. The spouse can surrender a part of this pension in return for a lump sum payment.

If a contributor is not survived by a spouse, the contributor's estate has a right to the cash benefit available on resignation.

In addition, surviving children up to and including 16 years of age are entitled to an annual allowance, which is $3,098.60 as at 30 June 2011.

Death As A Pensioner

A spouse of a pensioner has a choice between a lump sum benefit and a pension. The lump sum is a cash refund of the excess of the contributions made by the member over the payments received as a pensioner. The pension is half the allowance payable to the pensioner at the date of death. A spouse under age 61 at the time of death can surrender up to one quarter of the pension in return for a lump sum payment.

If a pensioner is not survived by a spouse, the pensioner's estate has a right to a cash refund similar to the above.

B.4.3 Resignation

Upon resignation from employment a member can choose to leave their personal contributions in the scheme or to receive a lump sum benefit. The lump sum benefit is a refund of contributions made, increased (to allow for interest) by 0.25% per month for service after 1 May 1985 (except for Armed Forces where the increase factor applies from the date of commencement of contributory service). These lump sum benefits can be transferred to another superannuation scheme.

A member resigning after being in the Fund for at least 10 years (8 years for Prisons Service scheme) is entitled to additional provisions. Upon transfer to another superannuation scheme, the lump sum benefit is increased by 10% for each year in excess of 10, up to a maximum increase of 100%. Such a member has the option to have a deferred pension at age 50 or later. The amount then payable takes into account inflation between resignation and payment dates.

B.4.4 Withdrawal

At any time, a member of the General schemes may withdraw from the scheme and receive a refund of their personal contributions. No employer-subsidised benefit is available upon withdrawal.

APPENDIX C: Membership data details

C.1 Active Contributors at 30 June 2011

Armed Forces:

Age group	Average age	Number	Average salary	Average service
Males				
25 to 34	-	-	-	-
35 to 44	38.8	69	$70,938	20.1
45 to 54	49.1	6	$88,918	25.8
55 to 64	60.1	2	$22,619	20.4
65 and over	*	1	*	*
Total	40.4	78	$70,172	20.9
Females				
25 to 34	-	-	-	-
35 to 44	39.4	14	$70,425	20.1
45 to 54	46.4	3	$31,338	21.6
55 to 64	-	-	-	-
65 and over	-	-	-	-
Total:	40.6	17	$63,527	20.3
Males & Females				
25 to 34	-	-	-	-
35 to 44	38.9	83	$70,851	20.1
45 to 54	48.2	9	$69,725	24.4
55 to 64	60.1	2	$22,619	20.4
65 and over	*	1	*	*
Total	40.5	95	$68,983	20.8

Note - for privacy reasons no details are given where there was only one member in the group.

General (excluding Islands):

Age group	Average age	Number	Average salary	Average service
Males				
25 to 34	-	-	-	-
35 to 44	42.8	96	$78,580	20.5
45 to 54	51.0	1,399	$93,182	26.6
55 to 64	59.3	2,797	$101,512	30.4
65 and over	66.6	505	$99,258	32.4
Total	57.3	4,797	$97,675	29.3
Females				
25 to 34	-	-	-	-
35 to 44	41.9	89	$58,019	18.1
45 to 54	50.6	806	$77,042	22.9
55 to 64	59.6	1,592	$80,698	24.5
65 and over	66.7	346	$72,964	24.8
Total	57.3	2,833	$76,643	23.9
Males & Females				
25 to 34	-	-	-	-
35 to 44	42.3	185	$68,688	19.3
45 to 54	50.8	2,205	$87,283	25.3
55 to 64	59.4	4,389	$93,962	28.2
65 and over	66.6	851	$88,567	29.3
Total	57.3	7,630	$89,866	27.3

Islands:

Age group	Average age	Number	Average salary	Average service
Males				
25 to 34	34.0	2	$25,155	16.1
35 to 44	41.0	77	$24,512	19.9
45 to 54	48.9	129	$28,588	25.6
55 to 64	58.4	46	$24,978	29.4
65 and over	-	-	-	0.0
Total	48.1	254	$26,672	24.5
Females				
25 to 34	34.0	2	$19,570	16.8
35 to 44	40.4	82	$24,650	20.5
45 to 54	48.9	97	$23,683	25.6
55 to 64	58.2	37	$26,334	30.9
65 and over	*	1	*	*
Total	47.3	219	$24,459	24.5
Males & Females				
25 to 34	34.0	4	$22,362	16.5
35 to 44	40.7	159	$24,583	20.2
45 to 54	48.9	226	$26,483	25.6
55 to 64	58.4	83	$25,583	30.1
65 and over	*	1	*	*
Total	47.7	473	$25,647	24.5

Note - for privacy reasons no details are given where there was only one member in the group.

Police:

Age group	Average age	Number	Average salary	Average service
Males				
25 to 34	-	-	-	-
35 to 44	42.9	45	$91,164	21.1
45 to 54	49.5	145	$101,530	26.5
55 to 64	56.6	29	$118,283	31.7
65 and over	-	-	-	-
Total	49.1	219	$101,618	26.1
Females				
25 to 34	-	-	-	-
35 to 44	42.0	9	$78,412	19.9
45 to 54	48.5	22	$94,017	24.2
55 to 64	55.8	3	$112,234	31.7
65 and over	-	-	-	-
Total	47.4	34	$91,494	23.7
Males & Females				
25 to 34	-	-	-	-
35 to 44	42.7	54	$89,039	20.9
45 to 54	49.3	167	$100,540	26.2
55 to 64	56.5	32	$117,716	31.7
65 and over	-	-	-	-
Total	48.8	253	$100,258	25.7

Prisons Service:

Age group	Average age	Number	Average salary	Average service
Males				
25 to 34	-	-	-	-
35 to 44	-	-	-	-
45 to 54	51.1	12	$60,680	24.7
55 to 64	59.7	43	$62,465	28.0
65 and over	67.0	8	$59,093	32.1
Total	59.0	63	$61,696	27.9
Females				
25 to 34	-	-	-	-
35 to 44	-	-	-	-
45 to 54	50.9	3	$71,564	22.3
55 to 64	58.2	5	$66,414	24.2
65 and over	*	1	*	*
Total	58.1	9	$60,752	23.1
Males & Females				
25 to 34	-	-	-	-
35 to 44	-	-	-	-
45 to 54	51.0	15	$62,857	24.2
55 to 64	59.6	48	$62,876	27.6
65 and over	69.3	9	$52,527	30.8
Total	58.9	72	$61,578	27.3

Note - for privacy reasons no details are given where there was only one member in the group.

Judges and Solicitor-General schemes

Age group	Average age	Number	Average salary	Average service
Males				
45 to 54	-	-	-	-
55 to 64	61.7	8	$316,375	21.6
65 and over	67.1	7	$365,214	21.7
Total	64.2	15	$339,167	21.7
Females				
45 to 54	-	-	-	-
55 to 64	-	-	-	-
65 and over	-	-	-	-
Total	-	-	-	-
Males & Females				
45 to 54	-	-	-	-
55 to 64	61.7	8	$316,375	21.6
65 and over	67.1	7	$365,214	21.7
Total	64.2	15	$339,167	21.7

Parliamentary Scheme

Age group	Average age	Number	Average salary	Average service
Males				
35 to 44	-	-	-	-
45 to 54	47.5	3	$134,800	20.7
55 to 64	60.4	7	$134,800	24.3
65 and over	69.3	2	$134,800	23.8
Total	58.7	12	$134,800	23.3
Females				
35 to 44	-	-	-	-
45 to 54	*	1	*	*
55 to 64	-	-	-	-
65 and over	-	-	-	-
Total	*	1	*	*
Males & Females				
35 to 44	-	-	-	-
45 to 54	48.4	4	$134,800	20.7
55 to 64	60.4	7	$134,800	24.3
65 and over	69.3	2	$134,800	23.8
Total	58.1	13	$134,800	23.1

Note - for privacy reasons no details are given where there was only one member in the group.

C.2 Pensioners at 30 June 2011

	Retirement pensions Number	Retirement pensions Average pension	Spousal & dependant pensions Number	Spousal & dependant pensions Average pension
Males				
Under age 25	0	$0	43	$3,051
Age 25 to 49	27	$3,150	13	$3,028
Age 50 to 59	1,200	$17,945	28	$4,679
Age 60 to 69	9,181	$21,417	63	$5,313
Age 70 to 79	9,704	$21,801	143	$7,760
Age 80 and over	6,696	$21,443	286	$12,405
Total	26,808	$21,389	576	$9,191
Females				
Under age 25	0	$0	60	$3,022
Age 25 to 49	11	$4,397	53	$4,784
Age 50 to 59	496	$13,611	432	$7,456
Age 60 to 69	2,332	$14,701	1,897	$8,349
Age 70 to 79	1,925	$14,961	3,972	$9,376
Age 80 and over	1,474	$14,603	6,803	$9,924
Total	6,238	$14,654	13,217	$9,401

C.3 Deferred pensioners at 30 June 2011

Deferred pensions	Number	Average pension
Males		
Under age 25	0	$0
Age 25 to 49	2,226	$10,549
Age 50 to 59	3,104	$8,543
Age 60 to 69	135	$10,205
Age 70 to 79	0	$0
Age 80 and over	0	$0
Total	5,465	$9,401
Females		
Under age 25	0	$0
Age 25 to 49	276	$10,281
Age 50 to 59	129	$8,900
Age 60 to 69	5	$10,500
Age 70 to 79	0	$0
Age 80 and over	0	$0
Total	410	$9,849

C.4 Inactive Contributors at 30 June 2011

C.4.1 Inactive contributors for whom contribution but not salary information is available.

Withdrawal Benefits	Average age	Number	Average Withdrawal Benefit	Average duration
Armed Forces	52.6	19	$1,200	1.6
General	53.2	998	$11,851	3.8
Islands	44.7	136	$2,537	2.6
Police	57.3	6	$82,739	3.5
Prisons Service	55.2	6	$21,097	3.5
Judges & Solicitor-General	-	-	-	-
Parliamentary	-	-	-	-
All schemes	52.2	1,165	$11,003	3.6

C.4.2 Inactive contributors for whom salary but not contribution information is available.

Deferred Pensions	Average age	Number	Average Deferred Pension	Average duration
Armed Forces	39.7	7	$13,222	15.9
General	54.0	763	$11,170	18.7
Islands	49.1	22	$2,748	14.9
Police	56.4	149	$29,643	29.9
Prisons Service	61.8	5	$16,157	28.0
Judges & Solicitor-General	-	-	-	-
Parliamentary	-	-	-	-
All schemes	54.2	946	$13,925	20.4

APPENDIX D: Experience of the Fund

D.1 Table

The following table provides a summary of the actual and expected results arising from investigation of the experience of the Fund, for each scheme or group in the specific area, between 1 July 2010 and 30 June 2011.

	Armed Forces	General	Islands	Police	Prisons
Actual retirements (including deferred pensions)	202	703	20	12	5
Predicted	40	1,304	50	34	46
Actual deaths	0	13	2	0	0
Predicted	0	18	1	0	0
Actual ill-health	0	7	2	0	0
Predicted	0	35	2	3	1
Actual medical disengagement.	0	0	0	2	0
Predicted	0	0	0	16	0
Actual lump sum withdrawals	0	29	7	0	0
Predicted	1	48	11	0	1
Actual salary increase	1.8%	2.9%	1.4%	3.6%	1.4%
Predicted	3.8%	3.1%	3.6%	4.6%	3.0%

D.2 Retirements

Armed Forces scheme retirements were a lot more than expected, and General schemes' retirements continue to be less than expected as more contributors work to and beyond age 65. The Police scheme retirements have been distorted by the transfer option and are less than expected (although the transfers are on a similar set of terms). As the schemes age, the number of members close to the normal retirement age increases and the overall result depends on how many members retire at normal retirement age compared to those that continue in service.
In terms of the valuation, the effect of members deferring their retirement is not significant overall.

D.3 Deaths

With a relative low occurrence, some small variation in the number of deaths is to be expected from year to year.

D.4 Ill health retirement

The General schemes' contributor ill health retirement numbers have continued to be less than expected. Once members reach age 60, the ill-health benefit is the same as the normal retirement benefit; therefore, the mix of retirements may disguise the actual experience.

D.5 Medical disengagements

The Police scheme numbers disengaging are affected by the introduction of an option to transfer from the scheme taking the equivalent benefit. This option has recently closed although a large number of the Police scheme members took the opportunity to transfer prior to the closing of this transfer window.

D.6 Withdrawals

Actual withdrawals are less than expected in the General schemes. The numbers in the other schemes are small and some variations are to be expected.

D.7 Salary growth

Overall the salary growth has been lower than that expected.

APPENDIX E: Demographic valuation assumptions

E.1 Contributor decrement tables

Age	Age retirement	Ill health retirement	Death - males	Death - females	Withdrawal
Armed Forces:					
20	0.00	0.0005	0.00044	0.00016	0.1000
25	0.00	0.0005	0.00048	0.00018	0.1200
30	0.00	0.0005	0.00048	0.00021	0.0700
35	0.00	0.0005	0.00051	0.00026	0.0100
40	0.00	0.0000	0.00063	0.00037	0.0100
45	0.00	0.0000	0.00090	0.00062	0.0100
50	0.00	0.0000	0.00137	0.00099	0.0100
55	0.00	0.0000	0.00224	0.00160	0.0000
General (excluding Islands):					
20	0.00	0.0000	0.00044	0.00016	0.1000
25	0.00	0.0000	0.00048	0.00018	0.1000
30	0.00	0.0000	0.00048	0.00021	0.1000
35	0.00	0.0005	0.00051	0.00026	0.0700
40	0.00	0.0005	0.00063	0.00037	0.0400
45	0.00	0.0030	0.00090	0.00062	0.0300
50	0.03	0.0055	0.00137	0.00099	0.0200
55	0.05	0.0080	0.00224	0.00160	0.0000
60	0.15	0.0000	0.00375	0.00261	0.0000
Islands:					
20	0.00	0.0000	0.00109	0.00041	0.0390
25	0.00	0.0000	0.00120	0.00044	0.0340
30	0.00	0.0005	0.00121	0.00052	0.0300
35	0.00	0.0005	0.00128	0.00066	0.0400
40	0.00	0.0010	0.00157	0.00092	0.0430
45	0.00	0.0020	0.00224	0.00155	0.0280
50	0.10	0.0045	0.00343	0.00248	0.0100
55	0.16	0.0085	0.00560	0.00399	0.0000

Age	Age retirement	Ill health retirement	Death - males	Death - females	Withdrawal
Police:					
25	0.00	0.0600	0.00048	0.00018	0.0060
30	0.00	0.0600	0.00048	0.00021	0.0030
35	0.00	0.0600	0.00051	0.00026	0.0020
40	0.00	0.0600	0.00063	0.00037	0.0000
45	0.00	0.0600	0.00090	0.00062	0.0000
50	0.03	0.0300	0.00137	0.00099	0.0000
55	0.50	0.0000	0.00224	0.0016	0.0000
Prisons Service:					
20	0.00	0.0000	0.00044	0.00016	0.3500
25	0.00	0.0000	0.00048	0.00018	0.3000
30	0.00	0.0005	0.00048	0.00021	0.2500
35	0.00	0.0005	0.00051	0.00026	0.2000
40	0.00	0.0010	0.00063	0.00037	0.1400
45	0.00	0.0050	0.00090	0.00062	0.0800
50	0.03	0.0100	0.00137	0.00099	0.0450
55	0.05	0.0150	0.00224	0.00160	0.0200

For the Armed Forces scheme, retirement rates are duration specific rather than age specific. At duration 20, the rate of retirement was assumed to be 0.75, decreasing to 0.49 at duration 25, increasing a little to 0.53 at duration 30 and 0.52 at duration 35, and then decreasing rapidly to nil at duration 40. For those who would not complete 20 years duration before age 60, retirement was assumed to occur at age 60 only. Resignation rates were set at zero for durations 20 and over.

For contributors, it was assumed the percentage of members married at death varies from .2% at age 20 for males and females to above 76% at ages 50 and over for males and around 70% at ages 50 and over for females. These figures are based on the 2001 New Zealand Census figures.

E.2 Pensioners

The mortality of pensioners was examined in detail for both males and females and an experience table was developed in conjunction with PWC Actuaries. These tables have been used in the valuation.

Currently no further improvement to future mortality has been built into the basis.

It was assumed that the percentage of members married at the valuation date reduces gradually down from 76% at age 65 for males and 63% for females. It is also assumed that in a married couple, the female is three years younger than the male. These figures are based on the 2001 New Zealand Census figures.

Pensioner Mortality Rates

Age	Male	Female
60	0.0066	0.0045
61	0.0070	0.0050
62	0.0076	0.0056
63	0.0084	0.0062
64	0.0094	0.0069
65	0.0106	0.0074
66	0.0119	0.0080
67	0.0133	0.0085
68	0.0148	0.0091
69	0.0164	0.0099
70	0.0181	0.0108
71	0.0200	0.0119
72	0.0221	0.0133
73	0.0246	0.0149
74	0.0276	0.0168
75	0.0312	0.0190
76	0.0354	0.0215
77	0.0402	0.0243
78	0.0456	0.0274
79	0.0515	0.0311
80	0.0578	0.0354
81	0.0644	0.0404
82	0.0713	0.0461
83	0.0785	0.0525
84	0.0864	0.0598
85	0.0950	0.0681

Age	Male	Female
86	0.1043	0.0772
87	0.1147	0.0874
88	0.1262	0.0984
89	0.1388	0.1104
90	0.1525	0.1229
91	0.1673	0.1357
92	0.1835	0.1489
93	0.2021	0.1621
94	0.2255	0.1752
95	0.2503	0.1884
96	0.2786	0.2016
97	0.3104	0.2148
98	0.3457	0.2280
99	0.3852	0.2412
100	0.4289	0.2544
101	0.4768	0.2676
102	0.5289	0.2808
103	0.5852	0.2940
104	0.6457	0.3072
105	0.7104	0.3204
106	0.7793	0.3336
107	0.8524	0.3468
108	0.9297	0.3600
109	1.0000	0.3732
110	1.0000	1.0000

APPENDIX F: Financial valuation assumptions

F.1 CPI and general salary growth

Year ended 30 June	Rate of CPI increase p.a. Fund Share	Statutory	Rate of general salary growth p.a.
2012	3.0%	3.0%	3.0%
2013 and later	2.5%	2.5%	3.0%

F.2 Discount rates

Year ended 30 June	Discount rate p.a. Fund Share	Statutory
2012	2.04%	6.25%
2013	2.74%	6.25%
2014	3.35%	6.25%
2015	3.80%	6.25%
2016	4.11%	6.25%
2017	4.32%	6.25%
2018	4.45%	6.25%
2019	4.49%	6.25%
2020	4.49%	6.25%
2021	4.49%	6.25%
2022	4.49%	6.25%
2023	4.49%	6.25%
2024	4.47%	6.25%
2025	4.44%	6.25%
2026	4.40%	6.25%
2027	4.37%	6.25%
2028	4.33%	6.25%
2029 and later	4.32%	6.25%

Note: As discussed in section 7.9 of this report both these discount rates were subsequently adjusted to allow for future mortality improvement (a 0.25% deduction to the discount rates).

F.3 Promotional salary growth

Age	Armed Forces	General	Islands	Police	Prisons
20	0.0700	0.0150	0.0100	0.0225	0.0460
25	0.0700	0.0150	0.0100	0.0225	0.0440
30	0.0150	0.0150	0.0100	0.0225	0.0350
35	0.0113	0.0125	0.0100	0.0219	0.0260
40	0.0075	0.0100	0.0100	0.0213	0.0200
45	0.0037	0.0075	0.0100	0.0206	0.0050
50	0.0000	0.0050	0.0000	0.0200	0.0000
55	0.0000	0.0000	0.0000	0.0000	0.0000
60	0.0000	0.0000	0.0000	0.0000	0.0000