STATES OF JERSEY

JERSEY TEACHERS' SUPERANNUATION FUND: ACTUARIAL REVIEW AS AT 31ST DECEMBER 2013 – REPORT BY THE ACTUARY

Presented to the States on 13th March 2015
by the Chief Minister

STATES GREFFE

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REPORT OF THE CHIEF MINISTER

Article 3(12) of the Teachers' Superannuation (Jersey) Law 1979 requires the appointment of an Actuary to review the operation of the Jersey Teachers' Superannuation Fund (JTSF).

Under Article 3(13) of the Law, on each review under paragraph (12) the Actuary shall make a report to the Chief Minister, the Minister for Treasury and Resources and the Management Board on –

(a) the financial condition of the Fund; and

(b) the adequacy or otherwise of the contributions payable under this Law to support the pensions and other benefits payable under this Law.

The Scheme's Management Board and the States Employment Board have formally accepted the report, which was signed by the Scheme's Actuary on 7th January 2015 (see attached **Appendix**).

Valuation result

The main conclusions from the valuation are that –

(a) There is a surplus of £7.4 million as at 31st December 2013 (equivalent to a funding level of 101%), using best estimate assumptions and after taking account of the States of Jersey's expected future payments to cover the pension increase debt.

(b) The pension increase debt which the States of Jersey is required to repay is £101.1 million as at 31st December 2013.

(c) The employer contribution rate is 16.4% of pensionable salaries, of which 5.6% is being used to repay the pension increase debt and 10.8% to fund benefits.

(d) Using best estimate assumptions, the future employer contributions (10.8% of pensionable earnings) are insufficient to fund the benefits being promised (13.4% of pensionable salaries).

Dealing with a surplus

The surplus of £7.4 million as at 31st December 2013 is based on the provisions of the Scheme at that date.

Where a surplus is disclosed at a valuation, Article 18(4) of the Teachers' Superannuation (Administration) (Jersey) Order 2007 requires proposals to be submitted to the States to dispose of any surplus. Given that the size of the surplus is not material, the Scheme Actuary has recommended that no additional action should be taken to dispose of the surplus.

The Scheme Actuary therefore recommends that the remaining surplus is retained as a buffer against future adverse experience.

Notes on the Valuation

The overall approach adopted for the 2013 valuation is the same as for the 2010 valuation. In particular, the Actuary continued to use best estimate assumptions, whereby the future outcome is just as likely to be better or worse than assumed.

At each valuation, the Scheme Actuary reviews the assumptions to be used to ensure that financial assumptions are based on market conditions at the valuation date, and that the demographic assumptions take into account the Scheme's experience over the 3 year valuation period and any industry developments, for example on mortality expectations. The assumptions adopted for the valuation are described in detail in Appendices G and H of the Valuation Report.

At the 2010 valuation, the Scheme Actuary determined that the Scheme was in a balanced position. The funding position has improved to a £7.4 million surplus over the last 3 years due to –

- higher investment returns than expected, and
- general pay awards and pension increases being lower than expected

Pension Increase Debt

At its meeting on 24th October 2005, the Education, Sport and Culture Committee agreed in principle to provide for a Teachers' Scheme similar to the Public Employees Contributory Retirement Scheme (PECRS). Changes to the Teachers' Scheme came into force on 1st April 2007 and, in the main, aligned teachers' benefits to Jersey public sector pension benefits available under the PECRS. These changes were given effect through the making, by the Chief Minister, of the Teachers' Superannuation (New Members) (Jersey) Order 2007.

As a result of the changes, the funding of pension increases moved from the Education, Sport and Culture Revenue budget to the Jersey Teachers' Superannuation Fund, and the Scheme Actuary calculated a past service liability (the pension increase debt).

The Scheme Actuary has completed the 2010 and 2013 actuarial valuations on the basis that agreement is reached on the terms of repayment. The States has recognised the debt in its balance sheet since 2007, and a commitment to terms of repayment will have no additional balance sheet implications.

The actuarial report has been completed on the understanding that the States of Jersey will formally sign up to a repayment schedule within Orders for the repayment of the pension increase debt.

A formal repayment schedule has not as yet been incorporated into Orders. The JTSF Management Board and the Scheme Actuary are now requesting that this is formalised as soon as possible. The States Employment Board agreed at its meeting on 30th January 2015 that the drafting of Orders to formalise the terms of the debt should be progressed.

Summary

The 2013 actuarial valuation has identified that, using best estimate assumptions, the cost of the benefit package for new entrants has increased from 12.8% to 13.4% of pensionable salaries since the last valuation in 2010. The current employer contribution available to fund scheme benefits is 10.8% of pensionable salaries. There is insufficient ongoing funding to pay for the benefits being promised, and the situation has worsened over the valuation period. The Actuary has recommended that the Management Board work with the States to establish a sound funding strategy for the Scheme. The States Employment Board will need to consider how it is to address the sustainability of the Jersey Teachers' Superannuation Fund in the future.

A repayment schedule and basis for repayment needs to be incorporated into Orders for agreement, and it is proposed that the Law Draftsman's Office be requested to produce the draft Orders for signing.

Actuarial Report

The 2013 actuarial valuation was signed by the Scheme Actuary on 7th January 2015. A copy of every report, signed by the Scheme Actuary, shall be presented to the States by the Chief Minister as soon as practicable after it is made.

APPENDIX

Government Actuary's Department

Jersey Teachers' Superannuation Fund

Actuarial review as at 31 December 2013

Report by the actuary

Date: 7 January 2015

Author: Ken Kneller

To the Management Board of the Jersey Teachers' Superannuation Fund

In accordance with regulations 3(12) and 3(13) of the Teachers' Superannuation (Jersey) Law 1979 and regulation 16 of the Teachers' Superannuation (Administration) (Jersey) Order 2007, I have carried out an actuarial review of the Fund as at 31 December 2013. The previous valuation was carried out as at 31 December 2010 and I signed the report on 10 January 2013.

I now submit my report on the actuarial review as at 31 December 2013.

Appendix N sets out the limitations of this report.

Ken Kneller
Fellow of the Institute and Faculty of Actuaries
Government Actuary's Department
Edinburgh

7 January 2015

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1 Report

Introduction

1.1 The two main purposes of the review are

- to assess the level of assets and liabilities in the Fund, and
- to comment on the adequacy of the contributions payable by the employers and members.

1.2 Membership of the Fund is open to teachers in schools and other educational establishments in Jersey.

1.3 Since 31 March 2007, pension increases are required to be funded in advance within the Fund. Before that time increases were paid for as they arose. The change caused an immediate funding shortfall (the so-called 'pension increase debt') to arise in respect of accrual before that date

1.4 I understand that the Management Board and the States have agreed in principle that the initial amount of the pension increase debt will be £91.6m as at 31 December 2010 and that the debt will be repaid over a period of time; however there is not yet a formal agreement covering the details and timing of the additional contributions needed to repay the debt.

1.5 The Management Board has instructed me to finalise this report on the basis that a satisfactory agreement on these contributions will be achieved in due course. If agreement is not ultimately reached, then the conclusions of this report may be invalid and may have to be revised.

Summary

1.6 While the precise details of the pension increase debt remain unresolved, there is clearly some uncertainty about the valuation results.

1.7 Further, I understand that the current contribution rate being paid of 16.4% of pensionable salaries (which includes a contribution to service the pension increase debt) is fixed in regulations.

1.8 I have determined that the appropriate employer contribution rate to cover the accrual of new benefits in respect of continuing pensionable service would be 13.4% of pensionable salaries. This figure is 0.6% higher than the corresponding figure of 12.8% derived at the 2010 review.

1.9 Since the Management Board has specified that 5.6% of pensionable salaries should be considered to be servicing the pension increase debt, this leaves only 10.8% to cover the cost of ongoing accrual, which is 2.6% less than the assessed cost of 13.4% of pensionable salaries each year. This may be practical in the short term, however it does not seem viable as a long-term funding strategy.

1.10 The average employee contribution rate is 5.7% as at the effective date of this review.

1.11 Taking into account the States of Jersey's expected future payments to cover the pension increase debt, there is a small surplus of £7.4 million in the Fund on 31 December 2013. There was no surplus or deficit at the previous review as at 31 December 2010.

1.12 Regulation 18(4) of the Teachers' Superannuation (Administration) (Jersey) Order 2007 requires proposals to be submitted to the State to dispose of any surplus. Given that the size of the surplus is not material, I recommend a proposal that no additional action be taken to dispose of the surplus on the grounds listed in regulations 18(5)(a) and (b) of the 2007 order. It is expected that the surplus will gradually reduce to zero over a period of around 5 years, as a result of the underpayment of contributions relative to the assessed cost of continuing accrual, assuming that experience is in line with the assumptions adopted for this review.

1.13 I recommend that the Management Board should

- press the States of Jersey to formalise the terms of the pension increase debt, and
- work with the States of Jersey to establish a sound funding strategy for the future, with contributions being paid at least in line with the cost of continuing accrual.

Fund membership

1.14 At the review date, there were 1,150 contributors to the Fund with a total salary roll of £53.4 million and 919 pensions in payment with total annual pensions amounting to £15.2 million. There are a further 479 ex-contributors who have not yet started to receive their pension, whose deferred pensions total £2.3 million. For further details of the membership see Appendix D.

Treatment of the pension increase debt

1.15 The details of the pension increase debt have not been finalised but I understand that there is a provisional understanding that the initial amount of the debt will be £91.6m as at 31 December 2010 and that the debt will incur interest over time at the rate of 6.5% a year (in line with the gross discount rate used for the valuation as at 31 December 2010) less allowance for any repayments made.

1.16 On the basis above, assuming repayments have been made at a rate of 5.6% of pensionable salary, I calculated the pension increase debt to be £101.1m as at 31 December 2013.

1.17 However, for the purposes of this valuation, I have taken the pension increase debt onto the valuation balance sheet below face value, at £93.2m. This reflects the higher gross discount rate of 7.0% a year at this valuation, rather than the 6.5% expected to be earned on the debt. It broadly reflects an expectation that the debt will have been completely repaid by 2054 with, on average, payments being made in 2030.

1.18 Any significant change in the agreed initial amount of the debt or the repayment terms would have an impact on the capitalised value of the debt for valuation purposes.

Contributions

1.19 The cost of accruing benefits is set out in table 1 below.

1.20 Table 1 below shows the assessed contribution rates. Ideally, contributions would be payable at the assessed rate of 13.4% of pay towards ongoing accrual. However, given that the total contribution is currently fixed by regulations at the rate of 16.4% of pay and the Management Board has specified that we should assume that 5.6% of pay is used to provide for the pension increase debt, then the remaining 10.8% of pay will not fully cover the assessed costs of ongoing accrual.

1.21 The result derived in 2010 is shown for comparison. At the time of the 2010 valuation report, it had been expected that a new funding strategy would be identified and implemented which did not involve the underpayment of contributions relative to the cost of ongoing accrual.

Table 1: Contribution rates

	2013 result	**2010 result**
	% of pay	**% of pay**
Standard contribution rate (SCR)	17.2	16.9
Employee standard contribution rate	(5.0)	(5.0)
Expenses	1.2	0.9
Recommended employer standard contribution rate	**13.4**	**12.8**
Employer total contribution rate	16.4	16.4
Contributions for debt reduction	5.6	5.6
Employer actual contribution rate	10.8	10.8
Underpayment of standard contribution rate	**(2.6)**	**(2.0)**

Fund finances

1.22 I have compared the assets of the Fund with the liabilities of the Fund on the basis that the Fund will continue to operate and accept new members for the foreseeable future.

1.23 The assets include:

- the invested assets,
- the present value of future contributions in respect of current members, and
- the present value of expected future pension increase debt payments from the States of Jersey.

1.24 The liabilities include:

- accrued liabilities for all members including pension increases accrued before and after April 2007, and
- liabilities expected to be accrued to current active members including pension increases.

1.25 The valuation balance sheet is shown in table 2 below.

Table 2: Valuation results

Value of	2013 result £ million	2010 result £ million
Liabilities (including pension increases)		
Pensions in payment	216.6	168.9
Deferred members	39.8	42.4
Active members – past service	181.9	183.5
Active members – future service	119.8	111.3
Total liabilities	**558.1**	**506.1**
Assets		
Future contributions	86.1	94.5
Pension increase debt	93.2	91.6
Investments	386.2	320.1
Total assets	**565.5**	**506.1**
Surplus / (deficiency)	7.4	0
Funding level	101%	100%

1.26 The cost of providing future pension increases is around 28% of the Fund's total liability. The Fund could therefore afford to provide some level of pension increases as long as it remained at least 72% funded at each formal valuation.

Method and approach

1.27 Assets are taken at market value and market consistent assumptions have been used to value the liabilities. This valuation uses the actuarial method known as the 'Entry Age Method'. For more details see Appendix F.

Assumptions

1.28 The results of an actuarial valuation depend on assumptions made about future investment returns and the future demographic experience of the membership. The key assumptions are summarised in table 3:

Table 3: Key valuation assumptions

Assumption	2013 review	2010 review
Overall rate of return, net of inflation	3.5% p.a.	3.5% p.a.
Rate of return, net of earnings	2.0% p.a.	2.0% p.a.
Life expectancy:		
Male 65 year old in 2013	88.3	88.6
Female 65 year old in 2013	90.8	91.0
Male 65 year old in 2034	90.6	90.5
Female 65 year old in 2034	93.0	92.9

1.29 More details of these and the other assumptions can be found in Appendices G (financial assumptions) and H (demographic assumptions).

Sensitivity of results

1.30 The results of this review are sensitive to the choice of assumption made. Changing the key valuation assumptions has an impact on the calculated contribution rate and surplus/deficit as shown below.

Table 4: Sensitivity of valuation results to assumptions

	Employer standard contribution rate	Surplus (deficit)
	% of pay	£m
Valuation assumptions	13.4%	7
Real discount rate:		
-0.5%	16.0%	(36)
+0.5%	11.1%	44
General salary inflation:		
-0.5%	12.1%	21
+0.5%	14.7%	(7)
Age offset (for mortality assumption):		
-1 year	13.6%	(3)
+1 year	13.1%	18

1.31 For further details of these results, see Appendix I.

Solvency

1.32 Solvency is a measure of what level of the Fund's current liabilities would be covered by its assets were the Fund to wind up on the assessment date, here 31 December 2013, and the liabilities insured with an insurance company. In practice it may be difficult to insure the current benefits of the Fund exactly with an insurer, specifically the pension increases in line with Jersey inflation.

1.33 If the Fund were to wind up the Management Board may be able to recover some or all of the pension increase debt from the States of Jersey immediately. I have therefore presented the solvency position with and without the States paying the pension increase debt immediately in full.

Table 5: Estimated solvency position (nearest 5%)

Estimated solvency level	2013 review	2010 review
Pension increase debt paid	60%	60%
Pension increase debt not paid	50%	45%

1.34 The solvency level has slightly improved since the 2010 valuation (although due to rounding, it is not apparent in respect of the figures above allowing for repayment of the pension increase debt). For more detail on the assumptions used see Appendix J.

Developments since the last valuation

1.35 I carried out the last actuarial valuation as at 31 December 2010. My report was signed on 10 January 2013.

1.36 The main factors which have improved the funding position since 2010 are:

- higher investment returns than expected, and
- general pay awards and pension increases being lower than expected.

1.37 This main factors which have worsened the funding position since 2010 are:

- the effect of increasing the gross discount rate on the value of the pension increase debt, and
- miscellaneous factors, including the effects of the recent data cleansing exercise.

Investment issues

1.38 Investment markets have been volatile over the period from 31 December 2010 to 31 December 2013 (and continue to be so). Overall yields on corporate and UK Government bonds (both fixed interest and index-linked) are lower at this review compared to 2010. Equity markets have improved over the period, due to strong performance in 2012 and 2013.

1.39 The Fund invests around 90% in return-seeking assets (such as equities and property). This is expected to give higher returns over the long run than investing in bonds. Investing in bonds would better match the liabilities of the Fund and so reduce the variability of the funding position from review to review and reduce the risk of unexpected underfunding in the future. However, this would be at the expense of lower expected investment returns.

Additional information

1.40 This report should be read in full with its appendices, which contain details of the data, method, assumptions and results of the valuation.

Compliance

1.41 For the avoidance of doubt, the JTSF is not subject to UK pensions legislation and regulation. Therefore, there is no requirement on me from the Institute and Faculty of Actuaries to comply with the Financial Reporting Council's (FRC) Technical Actuarial Standards in carrying out this review. However, I have complied with GAD's own standards and guidance, including GAD's Statement of Understanding[1] for public sector pensions work, which interprets the FRC standards in a public sector context and contains additional best practice guidelines. See Appendix A for more details.

[1] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/256757/SoU_v_2.0.pdf

Appendix A: Regulations and actuarial standards relating to this review

Regulations

A.1 This report is issued in accordance with regulations 3(12) and 3(13) of the Teachers' Superannuation (Jersey) Law 1979 and regulation 16 of the Teachers' Superannuation (Administration) (Jersey) Order 2007.

GAD standards and guidance

A.2 The JTSF is not subject to UK pensions legislation. There is technically no requirement on me to comply with UK specific guidance issued by the Financial Reporting Council (FRC).

A.3 However, I have complied with GAD's own standards and guidance which interpret FRC standards in a public sector context and contain additional best practice guidelines as described in the following paragraphs.

A.4 The Government Actuary's Department (GAD) strives to work to a high quality at all times. In order to do this we adopt the following.

- Our Aims and Values which are our client relationship standard
- The Actuaries' Code which sets overriding principles for all members of the Actuarial Profession
- GAD Principles for Actuarial Quality which provides a set of overarching principles that are applied to all work carried out by actuarial staff in a professional capacity within GAD
- The Civil Service Code which sets out the standards of behaviour expected of civil servants
- The requirements of the UK Actuarial Profession relating to conflicts of interest
- GAD internal guidance which is available on request
- The GAD Statement of Understanding which includes material designed to ensure that the applicable provisions of the Technical Actuarial Standards (TASs) produced by the Financial Reporting Council (FRC) will be met in relation to all pensions work within GAD. For the avoidance of doubt these TASs are:
    - TAS-R: Reporting
    - TAS-M: Models
    - TAS-D: Data
    - TAS-P: Pensions

A.5 In addition all work will comply with any other relevant standards including those issued by the Institute and Faculty of Actuaries.

Appendix B: Summary of existing members' provisions

B.1 This Appendix summarises the main provisions applying to existing members (as at 31 March 2007) with effect from 1 April 2007. Different provisions apply to new members joining after 1 April 2007 (see Appendix C).

Membership

B.2 All pensioner, deferred and active members as at 31 March 2007 are 'existing members' of the Fund.

Contributions

B.3 Active members contribute at the rate of 6% of salary. Within certain limits, members may opt to pay additional contributions for the purchase of added years of service.

Retirement age

B.4 Pensions are normally payable from age 60 although members may continue to work after this age.

Benefits on retirement at or after age 60

B.5 Subject to a qualifying period of two years, the pension is 1/80th of pensionable salary per year of service. Pensionable salary is the highest salary paid in any period of 365 consecutive days within the last three years of service. This pension is payable monthly for the rest of the member's life.

B.6 A lump sum of three times the annual pension is also payable on retirement.

Benefits on retirement due to ill-health

B.7 On retirement due to ill-health with more than two years' service, an immediate pension and lump sum are payable, calculated on the same basis as benefits on retirement at or after age 60, but based on enhanced service (5-10 year's actual service – service doubled; 10-13⅓ years' actual service – service increased to 20 years; over 13⅓ years' actual service – service increased by 6⅔ years).

B.8 For members with less than two years' service, a grant is payable of 1/12th of average salary for each year of service.

Benefits on death in service

B.9 When a married member dies in service, a spouse's pension is payable at the rate of one half the pension that would have been received if the member had retired due to ill-health at the date of death. Spouse's pensions are only payable to male spouses in respect of service after 6 April 1988. An increased spouse's pension is payable for the first three months after a teacher's death.

B.10 Children's pensions are payable to dependent children until they leave full-time education. An increased pension is payable to children in the absence of a spouse.

B.11 A lump sum is also payable equal to two times annual salary.

Benefits on withdrawal

B.12 A member who leaves service with less than two years' service may take a refund of contributions paid, accumulated with compound interest at 3%.

B.13 A member who leaves with two or more years' service is entitled to a preserved pension and lump sum payable at age 60.

B.14 On future re-entry to the Fund, earlier service may be aggregated with the new period of service for the purpose of calculating benefits at retirement, provided that the member has not taken a refund of contributions or a transfer value.

Benefits on death after retirement

B.15 When a married member dies after retirement, a spouse's pension is payable at the rate of one half of the member's pension. Spouse's pensions are only payable to male spouses in respect of service after 6 April 1988. An increased spouse's pension is payable for the first three months after a member's death.

B.16 Children's pensions are payable to dependent children until they leave full-time education. An increased pension is payable to children in the absence of a spouse.

B.17 On the death of a pensioner with less than 10 years' service, a lump sum is payable equal to five times the annual pension in payment at the date of death, less the pension and lump sum already received before death. On death of a pensioner with 10 or more years' service, a lump sum is payable equal to average salary less the pension and lump sum already received before death.

Cessation on remarriage

B.18 Spouse pensions cease on remarriage or cohabitation unless the Management Board directs otherwise.

Pension increases

B.19 Pensions in payment and preserved benefits are increased each January in line with Jersey inflation over the 12 months to the previous December.

Impact of future valuations

B.20 Section 18 of the regulations[2] provides that if a future actuarial valuation reveals a surplus or deficit in the pension fund, then the members' benefits may be adjusted to bring the fund back into balance, unless the Management Board and the Minister arrange otherwise.

[2] Teachers' Superannuation (Administration) (Jersey) Order 2007

Appendix C: Summary of new members' provisions

C.1 This Appendix summarises the main provisions applying to new members joining after 1 April 2007. Different provisions apply to existing members as at 31 March 2007 (see Appendix B).

Membership

C.2 All full-time and part-time teachers in state schools, accepted independent schools and further education colleges who first joined service on or after 1 April 2007 are eligible for membership of the Fund.

Contributions

C.3 Members contribute at the rate of 5% of salary. Within certain limits, members may opt to pay additional contributions for the purchase of added years of service.

Retirement age

C.4 Pensions are normally payable from age 65 although members may continue to work after this age. Members may opt to take an actuarially reduced pension from age 60 with the pension reduced by 2.4% for each year retired early.

Benefits on retirement at or after age 65

C.5 Subject to a qualifying period of two years, the pension is 1/80th of pensionable salary per year of service. Pensionable salary is the highest salary paid in any period of 365 consecutive days within the last three years of service. This pension is payable monthly for the rest of the member's life.

C.6 Up to 25% of the pension may be commuted for a lump sum at retirement, at a rate of £13.50 of lump sum for each £1 pa pension.

Benefits on retirement due to ill-health

C.7 On retirement due to ill-health with more than two years' service, an immediate pension and lump sum are payable, calculated on the same basis as benefits on retirement at or after age 65, but based on enhanced service (5-10 year's actual service – service doubled; 10-13⅓ years' actual service – service increased to 20 years; over 13⅓ years' actual service – service increased by 6⅔ years).

Benefits on death in service

C.8 When a married member dies in service, a spouse's pension is payable at the rate of one half the pension that would have been received if the member had continued in service until normal retirement age. An increased spouse's pension is payable for the first three months after a member's death.

C.9 Children's pensions are payable to dependent children until the age of 17 or until they leave full-time education. An increased pension is payable to children in the absence of a spouse.

C.10 For members with at least 5 years' service, a lump sum is payable equal to two times annual salary. For members with less than 5 years' service, a lump sum is payable equal to $^{2}/_{5}^{ths}$ of annual salary for each year and part year of service.

Benefits on withdrawal

C.11 A member who leaves with less than two years' service may take a refund of contributions paid, accumulated with compound interest at 3%.

C.12 A member who leaves with two or more years' service is entitled to a preserved pension and lump sum payable at age 65.

C.13 On future re-entry to the Fund, earlier service may be aggregated with the new period of service for the purpose of calculating benefits at retirement, provided that the member has not taken a refund of contributions or a transfer value.

Benefits on death after retirement

C.14 When a married member dies after retirement, a spouse's pension is payable at the rate of one half of the member's pension payable (before any deduction in respect of any commutation for a lump sum). An increased spouse's pension is payable for the first three months after a member's death.

C.15 Children's pensions are payable to dependent children until the age of 17 or until they leave full-time education. An increased pension is payable to children in the absence of a spouse.

Pension increases

C.16 Pensions in payment and preserved benefits are increased each January in line with Jersey inflation over the 12 months to the previous December.

Impact of future valuations

C.17 Section 18 of the regulations[3] provides that if a future actuarial valuation reveals a surplus or deficit in the pension fund, then the members' benefits may be adjusted to bring the fund back into balance, unless the Management Board and the Minister arrange otherwise.

[3] Teachers' Superannuation (Administration) (Jersey) Order 2007

Appendix D: Membership data

D.1 The following tables provide a summary of the data used for this actuarial review. The results and conclusions of the review depend on the accuracy and quality of this data.

D.2 I have relied on the accuracy of the information provided by the Dedicated Pensions Unit (DPU), the Fund's administrators. They provided data on the individual membership as at 31 December 2013 and membership movements for the period since 31 December 2010. I have taken reasonable steps to satisfy myself that the data provided is of adequate quality for the purposes of the valuation, including carrying out tests to detect obvious inconsistencies. These checks provide no reason to doubt the validity of the information supplied but I am not in a position to confirm that the detailed information provided in respect of individual members is correct.

Active members

Table D.1: Active members as at 31 December 2013

Category	Number	Average age (weighted by salary) (years)	Average age (weighted by pension) (years)	Average service (years)	Total full time equivalent salaries £million	Average full time equivalent salary £	Total actual salary roll £ million
As at 31 December 2013							
Existing Section Men	258	47.7	50.9	18.7	14.7	57,100	
Existing Section Women	523	46.0	48.8	15.6	27.0	51,600	
Existing Section Total	781	46.6	49.6	16.6	41.7	53,400	39.2
New Section Men	122	38.3	41.7	3.4	5.4	44,300	
New Section Women	247	34.1	35.8	2.7	10.7	43,400	
New Section Total	369	35.6	38.1	2.9	16.1	43,700	14.2
All Men	380	45.3	50.3	13.8	20.1	53,000	
All Women	770	42.8	48.0	11.5	37.7	49,000	
Total	**1,150**	**43.7**	**48.9**	**12.2**	**57.8**	**50,300**	**53.4**

Table D.2: Comparison of active members, 2010 to 2013

	As at 31 December 2013	As at 31 December 2010
Number	1,150	1,091
Average age (years) (weighted by salary)	43.7	44.5
Average age (years) (weighted by pension)	48.9	49.5
Average service (years)	12.2	13.5
Total full time equivalent salaries (£million)	57.8	53.8
Average full time equivalent salary (£)	50,300	49,300
Total salary roll (£million)	53.4	51.2

Table D.3: Changes in active membership, 2010 to 2013

	Existing Section			New Section			Total		
	Men	**Women**	**Total**	**Men**	**Women**	**Total**	**Men**	**Women**	**Total**
Numbers at 31 December 2010	**305**	**605**	**910**	**63**	**118**	**181**	**368**	**723**	**1,091**
Plus									
New entrants	5	4	9	64	146	210	69	150	219
Transfers in	-	-	-	1	2	3	1	2	3
Total entrants	5	4	9	65	148	213	70	152	222
Less									
Deaths in service		1	1	1	-	1	1	1	2
Age retirements	24	43	67	-	-	-	24	43	67
Ill-Health retirements	4	4	8	-	-	-	4	4	8
Early retirements	-	-	-	-	1	1	-	1	1
Deferred exit	33	60	93	7	18	25	40	78	118
Refunds/Transfers out	4	4	8	3	9	12	7	13	20
Reason not recorded	-	3	3	1	2	3	1	5	6
Total exits	65	115	180	12	30	42	77	145	222
Plus net "Untraced"	13	29	42	6	11	17	19	40	59
Numbers at 31 December 2013	**258**	**523**	**781**	**122**	**247**	**369**	**380**	**770**	**1,150**

Deferred members

Table D.4: Deferred members as at 31 December 2013

Category	Number	Deferred pensions, £000s	Average age (weighted by pension) (years)	Average deferred pension, £
As at 31 December 2013				
Existing Section Men	130	806	52.2	6,200
Existing Section Women	303	1,430	52.1	4,700
Existing Section Total	**433**	**2,236**	**52.1**	**5,200**
New Section Men	16	20	37.0	1,300
New Section Women	30	39	36.3	1,300
New Section Total	**46**	**60**	**36.5**	**1,300**
All Men	146	827	51.8	5,700
All Women	333	1,469	51.7	4,400
Total	**479**	**2,296**	**51.7**	**4,800**

Table D.5: Comparison of deferred members, 2010 to 2013

	As at 31 December 2013	As at 31 December 2010
Number	479	406
Total deferred pensions (£000s)	2,296	2,413
Average age (years) (weighted by pension)	51.7	52.0
Average deferred pension (£)	4,800	5,900

Table D.6: Changes in number of deferred members, 2010 - 2013

	Existing Section			New Section			Total		
	Men	**Women**	**Total**	**Men**	**Women**	**Total**	**Men**	**Women**	**Total**
Numbers at 31 December 2010	**118**	**266**	**384**	**9**	**13**	**22**	**127**	**279**	**406**
Plus									
Leavers from active service	33	60	93	7	18	25	40	78	118
Less									
Deaths in deferment	-	2	2	-	-	-	-	2	2
Age retirements	34	43	77	-	-	-	34	43	77
Refunds/Transfers out	1	-	1	-	2	2	1	2	3
Total exits	35	45	80	-	2	2	35	47	82
Plus net "Untraced"	14	22	36	-	1	1	14	23	37
Numbers at 31 December 2013	**130**	**303**	**433**	**16**	**30**	**46**	**146**	**333**	**479**

Pensioner members

Table D.7: Pensions in payment

	Pensions as at 31 December 2013			
Category	Number	Annual Pensions £s	Average Pension £s	Average age (pension weighted)
Normal Health				
Men	271	5,455,000	20,100	70.6
Women	436	6,529,000	15,000	69.4
Ill Health				
Men	60	1,362,000	22,700	67.5
Women	68	1,246,000	18,300	69.1
Spouses	78	554,000	7,100	74.5
Children	6	19,000	3,200	13.2
Total	**919**	**15,164,000**	**16,500**	**69.7**

Table D.8: Comparison of pensioners, 2010 to 2013

	As at 31 December 2013	As at 31 December 2010
Number	919	765
Total annual pensions (£)	15,164,000	11,481,000
Average annual pension (£)	16,500	15,000
Average age (years) (weighted by pension)	69.7	69.0

Table D.9: Changes in number of pensioners, 2010 - 2013

	Men	Women	Total
Numbers at 31 December 2010	**298**	**467**	**765**
Plus			
Age retirements	58	86	144
Early retirements (not ill-health)	0	1	1
Ill-health retirements	4	4	8
New Widow(er)s	4	13	17
New Children	0	0	0
Total entrants	66	104	170
Less			
Deaths	22	32	54
Others	0	5	5
Total exits	22	37	59
Plus net Untraced	9	34	43
Numbers at 31 December 2013	**351**	**568**	**919**

Appendix E: The Fund's accounts from 2010 to 2013

E.1 Table E.1 summarises the revenue accounts for each of the three years preceding 31 December 2013. Table E.2 shows the rates of return and RPI for each of the three years.

Table E.1: Fund revenue accounts, 2011 to 2013*

£ million	Year ended 31 December			Three years
	2011	2012	2013	2011-2013
Fund at start of period	320.0	302.6	326.7	320.0
Income				
Contributions	11.5	11.4	11.7	34.6
Investment income*	3.3	3.3	3.4	10.0
Incoming transfers	0.2	0.2	0.6	1.0
Total income	15.0	14.9	15.7	45.6
Outgo				
Benefits	15.1	16.3	18.0	49.4
Administration expenses*	0.5	0.7	0.6	1.8
Other	0.0	0.4	0.1	0.5
Total outgo	15.6	17.4	18.7	51.7
Net cashflows (income less outgo)	(0.6)	(2.5)	(3.0)	(6.1)
Capital gains on investments	(16.8)	26.6	62.5	72.3
Fund at end of period	302.6	326.7	386.2	386.2

* net of investment expenses

Table E.2: RPI and Rates of return, 2011 to 2013

	Year ended 31 December			(Average)
	2011	2012	2013	2011-2013
Jersey RPI	5.0%	2.1%	1.9%	3.0%
Rate of return				
Nominal	- 4.6%	9.1%	19.3%	7.4%
Real (in excess of RPI)	- 9.1%	6.8%	17.1%	4.3%

Note that these return figures have been calculated by GAD and differ slightly from those shown in the annual accounts, due to minor differences in the method of calculation.

E.2 Table E.3 summarises the proportion of the Fund's assets held in different asset classes at 31 December 2010 and 31 December 2013.

Table E.3: Distribution of assets as at 31 December 2013 (and 2010)

Investment class	31 December 2013		31 December 2010	
	£ million	%	£ million	%
UK Equities	0.7	0	168.5	52.4
Overseas equities	-	-	99.3	30.8
Fixed-interest gilts	-	-	34.3	10.7
Property funds	-	-	15	4.7
CIF* equity	320.8	83	-	-
CIF* fixed income	25.3	7	-	-
CIF* property	35.9	9	-	-
Cash	-	-	2.7	0.6
Net current assets	3.5	1	0.3	0.8
Total	386.2	100	320.1	100

***** Since 31 December 2010 a majority of the Fund's assets have been placed in a Common Investment Fund (CIF)

Appendix F: Valuation and funding methodology

Valuation methodology

F.1 In this review I have used a market-based approach. This is the same approach as was used in 2010.

F.2 Under a market-based approach, the assets are taken at market value and the liabilities are valued using discount rates derived from current market conditions (consistent with the value of the assets). The standard contribution rate will be assessed using discount rates considered appropriate for new investment in respect of future contributions – in practice, these discount rates are often the same as the market-based rates used to value the past service liabilities.

F.3 The 2010 valuation was carried out using an actuarial methodology called the Entry Age Method (EAM), as follows:

- the standard contribution rate was determined so as to be sufficient to meet the cost of all future benefits (including pension increases) for a typical new entrant (at the assumed normal entry age). This calculation reflected the benefit entitlements of members on the New Member scale;
- the value of the liabilities (past and future service, and including pension increases) was compared to the combined value of the Fund's assets and future standard contributions (identifying that the Fund had a material deficit);
- The deficit mainly arose as a result of the Fund taking on responsibility for pension increases, which had formerly been funded by employers as they arose. It was agreed that the deficit would be covered by the States of Jersey. A schedule of payments to cover this amount, called the 'pension increase debt' is being agreed by the Board and the States.
- These future pension increase debt contributions can be treated as an asset of the Fund. At the 2010 valuation it was assumed that the pension increase debt contributions would exactly cover the deficit, so that the Fund was in balance as at 31 December 2010;
- the recommended employers' contribution rate was determined by adjusting the employers' element of the standard contribution rate (that is, excluding members' contributions) to allow for administrative expenses expected to be charged to the Fund. In general, the employers' contribution rate would also be adjusted to allow for the surplus or deficit at the valuation date, but in 2010 the Fund was deemed to be in balance given the expected treatment of the pension increase debt.

F.4 The EAM is used less often now than it has been historically. However, it remains a viable methodology for schemes with stable workforces, with members who tend to have similar patterns of employment, such as the JTSF.

F.5 Other alternative funding approaches that could be adopted for the current review are the Attained Age Method (AAM) and the Projected Unit Method (PUM).

- Under AAM the standard contribution rate would be determined for all current active members so as to be sufficient to meet all (projected) future benefits.
- Under PUM the standard contribution rate would be determined by reference to the cost of benefits accruing to all members over the period to the next actuarial review (the "control period").

F.6 The Management Board at their meeting on 4 December 2013 opted to use the EAM for the 2013 review.

Appendix G: Financial assumptions

G.1 The JTSF rules contain provisions to 'share' any surplus or deficit reported at a formal valuation by amending benefits or contribution rates. It follows that assumptions might be chosen to avoid any deliberate material margins of prudence or optimism, since these would lead to a reported deficit or surplus which was not genuinely expected to emerge in practice. This could confuse the operation of the surplus / deficit sharing arrangements.

G.2 Following discussion with the Management Board, the assumptions (both demographic and financial) adopted for this review taken as a whole are intended to give a 'best estimate' of the Fund's liabilities. In other words the assumptions do not include any deliberate material margins for prudence or optimism. This means that there is, in my opinion, an equal chance of either a surplus or a deficit emerging at future reviews. In technical terms the results of this review provide a neutral estimate of the financial position of the Fund.

G.3 I discussed the financial assumptions for this review with the Management Board at their meeting on 25 March 2014, based on my paper of 14 March 2014. The Management Board accepted the recommendations in my paper which are summarised in the remainder of this section.

G.4 Table G.1 summarises the principal financial assumptions adopted for the current review, together with those adopted at the 2010 review.

Table G.1: Principal financial assumptions (market-based)

Assumption	2013 review	2010 review
Overall rate of return, net of inflation	3.5%	3.5%
Gross rate of return	7.0%	-
Rate of return, net of earnings	2.0%	2.0%
Price increases	~3.5%	-
Real earnings growth	1.5%	1.5%

Rationale for the discount rate assumption

G.5 The discount rate reflects the 'time value of money', and so can be thought of as the interest one might earn on investments. It is therefore natural to have regard to expected investment performance when setting discount rate assumptions, subject to any external constraints, for example the requirements of the Fund rules or any overriding legislation or regulation.

G.6 It therefore seems appropriate to adopt a discount rate which has regard to the best estimate of the future investment returns which the JTSF might expect to achieve given its long-term investment strategy, while reflecting other relevant factors.

Investment experience 2011 to 2013

G.7 The discount rate is a forward looking measure, however recent experience provides context for the decision. Over the three year period since the last actuarial review, the Fund earned an estimated average real rate of return of 4.3% a year, slightly greater than the discount rate (of 3.5% a year) adopted at the 2010 review.

G.8 Appendix E summarises the Fund's revenue accounts for the period 1 January 2011 to 31 December 2013 and shows the approximate rates of return (nominal and real) earned over that period.

Investment strategy

G.9 The Fund's investment strategy is to invest the bulk of the portfolio (around 90%) in return-seeking assets (such as equities and property), and 10% in risk-reducing assets (such as bonds). As at 31 December 2013, around 93% of the (invested) portfolio was invested in equities and properties, and 7% in bonds and cash.

G.10 In considering the expected returns, we consider only the investable assets. That is, we exclude the pension increase debt asset.

Jersey inflation and UK RPI

G.11 The discussion of expected real returns which follows starts by considering returns relative to the UK Retail Prices Index (RPI), rather than to Jersey inflation which is the relevant measure for a JTSF review. This is consistent with the investment advisors' practice, which reflects the much greater information available for the UK compared to Jersey.

G.12 We note that the JTSF rules refer to a Jersey Cost of Living Index (CLI)[4]. However, we understand that no official index exists with this name, and in practice the Fund uses Jersey RPI as published by the Chief Minister's Statistics Unit where necessary.

G.13 Over the past ten years or so, the Jersey RPI has increased at a comparable rate to UK RPI. Looking back further (ten years and more) we understand that Jersey RPI increased at a notably faster rate than UK RPI.

G.14 The Chief Minister's Economic Advisor, Dougie Peedle, has observed that:

- over the long term, say 1950 to date, Jersey RPI has exceeded UK RPI by around 0.25% a year. (This is consistent with the assumption adopted at the 2010 review of the JTSF),
- conversely, it seems implausible for Jersey inflation to exceed UK inflation indefinitely, given the impact this would have on competitiveness (in the context of a shared currency), and
- the States of Jersey's working assumption for medium to long-term financial planning is that Jersey RPI will be 3.5% a year.

[4] For example, see the Teachers' Superannuation (Administration)(Jersey) Order 2007 article 23.

Investment returns – the 'equity risk premium'

G.15 We can analyse expected investment returns by considering the market yields on index-linked gilts, which can be interpreted as the market risk-free return, and then considering the additional return which might be expected from investment in return-seeking assets. The additional return (over risk-free rates) expected from investment in equities is usually called the 'equity risk premium'.

G.16 As at 31 December 2013, and based on terms of over 5 years and over 15 years, the real market yield on longer-dated UK index-linked gilts was around 0% a year, net of UK RPI. However, there is not an obvious market rate of return that can be readily identified in respect of equities relative to the returns available on gilts. We have therefore considered:

- academic research,
- the practice of other pension schemes, and
- the views of the Fund's investment advisors.

G.17 Many academic researchers have considered the 'equity risk premium'. There is however no clear consensus on what the equity risk premium is, or how it might vary from time to time. Typically, academic researchers have concluded that in the long term the equity risk premium might be between 2% and 4% a year. Short-term conditions, however, might mean that expectations on a particular date could lie outside this range.

G.18 The UK Pensions Regulator publishes some summary data on the practice of funded UK pension schemes. While this doesn't directly cover schemes' assumptions for the equity risk premium, the published data is consistent with an assumed equity risk premium of 1.5-2.5%. It should be noted that these assumptions would be intended to be clearly on the prudent side of best estimate (as a consequence of other aspects of the UK pension regulations).

G.19 The Fund's investment advisors have confirmed that their expectations for the ten years from 1 January 2014 are that UK equities will show a real return of 4.25% a year (over UK RPI). For the portfolio as a whole, and taking into account the large element of global equities in the fund, the equity risk premium over the next ten years is expected to be about 4.5%.

G.20 This equates to a best-estimate of the total real return over ten years based on the Fund's strategic asset allocation of 3.9% (over UK RPI). This is based on analysis which excludes any allowance for expected manager outperformance as in our view it would be unusual to allow for this when considering and setting the valuation discount rate.

G.21 It should be noted that the investment advisors' estimates of expected future investment returns refer to the next ten years only, and not to the longer term. It may not be reasonable to adopt a discount rate which is predicated on returns remaining this high in the longer term, given the academic research and the practice of other funded pension schemes.

Real discount rate for the 2013 review

G.22 Taking all this into account, maintaining a real discount rate of 3.5% a year (in excess of Jersey inflation) would appear reasonable to me, and could be justified either as:

- an expected real investment return of 3.5% in excess of UK RPI, with expected Jersey RPI assumed to be the same as expected UK RPI or
- an expected real investment return of 3.75% in excess of UK RPI, with expected Jersey RPI assumed to be 0.25% a year higher than UK RPI on average.

G.23 A real discount rate of 3.5% a year could be a reasonable best estimate of the long-term expected investment returns which the JTSF might achieve on its investable assets. It is slightly lower than the Management Board's investment advisors' expected returns over the next ten years, however that may be reasonable given that:

- the discount rate needs to reflect expectations over the long term, not just the next ten years,
- there is uncertainty regarding the likely future differential between UK RPI and Jersey RPI, and
- the expected returns are predicated on a high allocation to return-seeking assets, which may not persist in the long term.

G.24 The Management Board should appreciate that there is considerable uncertainty around this assumption, and that future experience could differ materially. It would be possible to justify a higher or lower discount rate for this review of the JTSF. On balance, I believe that the discount rate of 3.5% lies towards the top of the range of reasonable assumptions for the 2013 review. There will be an obligation to reconsider the decision afresh at future reviews.

G.25 The same assumptions will be used to determine the standard contribution rate in respect of future service accrual. This is reasonable since the Fund does not currently have an excess of contribution income over benefit outgo and this position seems likely to remain so for some time. Thus, uncertainties about the returns which might be obtained from the investment of new money in the future are not a material consideration.

Real earnings growth

G.26 Over the past three years, the consolidated pay awards for JTSF members (excluding career and/or promotional increases) have been on the whole lower than the increases in the Jersey RPI, apart from the January 2014 award. Therefore real earnings growth (net of inflation) has been negative over the past three years. However, for the purpose of the actuarial review, a long-term assumption is required regarding general earnings increases.

G.27 We have maintained the long-term assumption for real earnings growth at 1.5% a year (in excess of price increases), as was adopted for the 2010 review, and consistent with long-term historic economic experience.

G.28 The relatively short period of pay restraint since 2010 does not, by itself, provide sufficient evidence to warrant altering this assumption.

Alternative approaches to setting the discount rate

G.29 The rationale given above includes the assumption that the Fund's current investment strategy will continue for the long term. Given the high allocation to return-seeking assets, an alternative approach would be to assume that the allocation to return-seeking assets declines over time. This might be to reflect an actual long-term expectation that this will happen, or simply to introduce an element of prudence into the assumptions.

G.30 All other things being equal, such an approach would reduce the discount rate and increase the assessed value of the liabilities, thus leading to a smaller surplus (or bigger deficit). Conversely, a more sophisticated approach to considering how discount rates might vary over time might justify placing more weight on the investment advisors' views on the short-term equity risk premium, which would offset (perhaps completely) the effect of a lower allocation to return-seeking assets.

G.31 We have not considered such approaches further at this stage, but would be happy to do so, particularly if the Board had any expectation that the investment strategy might change over the long term.

Appendix H: Demographic assumptions

H.1 GAD has analysed the demographic experience of the Fund over the last three to twelve years in order to inform the decision on suitable valuation assumptions. The full details of this analysis can be found in my paper of 19 August 2014, which was presented to the Management Board at their meeting of 7 October 2014.

H.2 After discussion the Management Board agreed that the demographic assumptions adopted should be the same as those of the 2010 review except for:

- Future improvements in mortality, to reflect the release of a new set of national projections by the Office for National Statistics (ONS) in 2012.
- Ill health pensioners' age adjustment (compared to the mortality assumption used for normal health pensioners) which has been reduced from the +4 years assumed at the 2010 valuation to +3 years for this valuation, to better reflect the experience of the Fund.

Assumptions for current and future pensioners

H.3 Table H.1 shows the assumptions for mortality in retirement for current and future pensioners. Table H.2 shows the assumed difference in age between member and a surviving spouse (if any) on the member's death at a given age. Table H.3 shows the assumed proportions of members who leave a surviving spouse on the member's death at a given age. Table H.4 shows the assumed proportion of widow(er)s who remarry at a given age.

Table H.1: Mortality assumptions

Standard mortality tables		S1NMA/S1NFA for men and women respectively. S1DFA for widows.	
Mortality improvements		ONS 2012 central projections (actual improvements between 2002 and 2012)	
Age Ratings	Normal health pensioner	Widow(er)	Ill health pensioner
Men	0	0	+3
Women	0	0	+3

Table H.2: Age difference at death (member age less spouse age)

Men		Women	
below 27	1	below 27	-1
27 to 39	2	27 to 39	-2
40 to 59	3	40 to 61	-3
60 to 69	4	62 to 67	-2
70 to 79	5	68 to 73	-1
above 79	6	74 to 78	0
		79 to 82	1
		83 to 86	2
		87 to 91	3
		92 to 96	4
		above 96	5

Table H.3: Proportion of members married (on death) per 1,000 members

Men				Women			
Age	**Rate**	**Age**	**Rate**	**Age**	**Rate**	**Age**	**Rate**
Under 23	29	**66**	849	**Under 23**	36	**66**	622
23	44	**67**	850	**23**	51	**67**	617
24	73	**68**	848	**24**	80	**68**	610
25	101	**69**	844	**25**	109	**69**	600
26	129	**70**	840	**26**	138	**70**	590
27	158	**71**	836	**27**	166	**71**	580
28	187	**72**	832	**28**	193	**72**	571
29	217	**73**	826	**29**	219	**73**	556
30	247	**74**	818	**30**	246	**74**	535
31	277	**75**	810	**31**	272	**75**	514
32	306	**76**	802	**32**	299	**76**	493
33	335	**77**	794	**33**	325	**77**	473
34	365	**78**	785	**34**	350	**78**	449
35	395	**79**	775	**35**	375	**79**	420
36	425	**80**	765	**36**	400	**80**	391
37	454	**81**	754	**37**	425	**81**	361
38	482	**82**	744	**38**	446	**82**	331
39	509	**83**	726	**39**	464	**83**	302
40	536	**84**	702	**40**	482	**84**	274
41	563	**85**	678	**41**	500	**85**	246
42	589	**86**	654	**42**	519	**86**	218
43	612	**87**	629	**43**	539	**87**	191
44	632	**88**	598	**44**	561	**88**	167
45	653	**89**	562	**45**	583	**89**	145
46	673	**90**	525	**46**	605	**90**	124
47	694	**91**	489	**47**	627	**91**	103
48	710	**92**	452	**48**	645	**92**	82
49	722	**93**	414	**49**	660	**93**	66
50	734	**94**	375	**50**	675	**94**	54
51	746	**95**	336	**51**	690	**95**	42
52	758	**96**	297	**52**	705	**96**	30
53	770	**97**	258	**53**	713	**97**	18
54	781	**98**	226	**54**	714	**98**	11
55	792	**99**	200	**55**	714	**99**	8
56	803	**100**	174	**56**	715	**100**	5
57	813	**101**	150	**57**	715	**101**	3
58	821	**102**	126	**58**	708	**102**	1
59	826	**103**	102	**59**	693	**103**	0
60	831	**104**	75	**60**	678	**104**	0
61	836	**105**	50	**61**	663	**105**	0
62	841	**106**	30	**62**	647	**106**	0
63	844	**107**	15	**63**	637	**107**	0
64	846	**108**	5	**64**	632	**108**	0
65	847	**Over 108**	0	**65**	627	**Over 108**	0

Table H.4: Rate of remarriage per 1,000 widow(er)s (Existing Section)

Men		Women	
Age	**Rate**	**Age**	**Rate**
Below 20	45	**Below 20**	0
21	93	**21**	0
22	98	**22**	50
23	103	**23**	100
24	108	**24**	100
25	113	**25**	100
26	118	**26**	100
27	123	**27**	100
28	125	**28**	99
29	125	**29**	97
30	125	**30**	95
31	125	**31**	93
32	125	**32**	91
33	122	**33**	87
34	116	**34**	81
35	110	**35**	75
36	104	**36**	69
37	98	**37**	63
38	93	**38**	58
39	88	**39**	54
40	83	**40**	50
41	79	**41**	46
42	75	**42**	42
43	71	**43**	39
44	68	**44**	37
45	65	**45**	34
46	62	**46**	32
47	61	**47**	29
48	60	**48**	27
49	59	**49**	25
50	58	**50**	23
51	57	**51**	21
52	56	**52**	19
53	55	**53**	17
54	54	**54**	16
55	53	**55**	14
56	52	**56**	13
57	51	**57**	11
58	49	**58**	9
59	47	**59**	8
60	43	**60**	7
61	39	**61**	6
62	35	**62**	5
63	31	**63**	4
64	27	**64**	3
65	23	**65**	3
66	18	**66**	2
67	13	**67**	2
68	8	**68**	1
69	4	**69**	1
70	1	**70**	0
Over 70	0	**Over 70**	0

Assumptions for deferred members

H.4 The same assumptions as for pensioners will be adopted, except as shown below.

Early and late retirement

H.5 It is assumed that early and late retirements are cost neutral for deferred members (this is equivalent to assuming that New section deferred members retire at 65, there is no provision for early retirement for Existing section members).

Commutation

	Existing section	New Section
Assumed proportion of pension commuted for cash at retirement	0%	16.67%

Re-entry to active service

H.6 Allowance for future re-entry is made by applying a loading of 0.5% to the revaluation in deferment assumption. This is broadly equivalent to assuming that one third of deferred members will re-enter active service.

Assumptions for active members

H.7 Active members have been valued using the same assumptions as pensioners and deferred members above, except as shown below.

H.8 Table H.5 shows the assumed annual rates of death of active members before retirement age.

H.9 Table H.6 shows the assumed rates at which active members voluntarily leave the Fund split by whether they have less than one year's service, one to two year's service or more than two years' service.

H.10 Table H.7 shows the assumed annual rates of retirement from the Fund on the grounds of ill health.

H.11 Table H.8 shows the assumed scale of average career progression promotional pay increases active members can expect.

Table H.5: Death in service

Men		Women	
Age	**Rate per 100,000 lives**	**Age**	**Rate per 100,000 lives**
Under 24	15	**Under 24**	15
24	18	**24**	15
25	20	**25**	15
26	20	**26**	19
27	20	**27**	23
28	20	**28**	23
29	20	**29**	23
30	20	**30**	23
31	23	**31**	23
32	25	**32**	26
33	25	**33**	30
34	28	**34**	30
35	30	**35**	34
36	33	**36**	38
37	35	**37**	38
38	38	**38**	41
39	43	**39**	45
40	48	**40**	49
41	53	**41**	53
42	58	**42**	56
43	63	**43**	60
44	70	**44**	64
45	80	**45**	68
46	90	**46**	71
47	100	**47**	79
48	110	**48**	86
49	123	**49**	94
50	138	**50**	101
51	153	**51**	113
52	168	**52**	128
53	183	**53**	143
54	198	**54**	158
55	215	**55**	173
56	235	**56**	188
57	255	**57**	206
58	275	**58**	229
59	298	**59**	251
60	323	**60**	274
61	348	**61**	296
62	375	**62**	323
63	405	**63**	356
64	435	**64**	394
65	468	**65**	435

Table H.6: Withdrawal rates (per 1,000 members)

Men				Women			
Age	**Less than 1 years' service**	**One to two years' service**	**More than two years' service**	**Age**	**Less than 1 year's service**	**One to two years' service**	**More than two years' service**
Under 22	80	66	53	**Under 22**	80	84	88
23	82	66	53	**23**	84	84	88
24	86	67	53	**24**	92	85	87
25	90	69	52	**25**	100	88	87
26	94	71	52	**26**	108	90	84
27	98	72	50	**27**	116	92	80
28	98	72	48	**28**	116	94	76
29	94	71	46	**29**	108	92	72
30	90	68	44	**30**	100	86	68
31	86	65	42	**31**	92	81	65
32	82	62	40	**32**	84	76	63
33	80	59	38	**33**	78	71	61
34	80	57	36	**34**	74	67	58
35	80	57	34	**35**	70	63	56
36	80	56	32	**36**	66	59	53
37	80	55	31	**37**	62	54	47
38	80	55	30	**38**	61	50	42
39	80	54	29	**39**	63	47	37
40	80	54	28	**40**	65	46	32
41	80	54	28	**41**	67	46	29
42	80	53	27	**42**	69	47	28
43	81	53	26	**43**	72	47	26
44	83	53	25	**44**	76	48	25
45	85	53	24	**45**	80	49	23
46	87	54	23	**46**	84	51	23
47	89	54	22	**47**	88	53	23
48	91	54	21	**48**	94	55	23
49	93	54	19	**49**	102	58	23
50	98	56	18	**50**	114	64	23
51	116	66	19	**51**	130	73	25
52	140	79	21	**52**	147	82	26
53	164	89	22	**53**	163	92	28
54	191	100	23	**54**	177	101	29
55	217	112	24	**55**	202	113	32
56	252	130	25	**56**	271	146	37
57	303	155	26	**57**	410	215	42
58	337	219	27	**58**	500	343	47
59	350	275	28	**59**	500	500	53
60 plus	0	0	0	**60 plus**	0	0	0

Table H.7: Ill health early retirements per 100,000 lives

Men		Women	
Age	**Rate**	**Age**	**Rate**
21	0	**21**	3
22	0	**22**	3
23	0	**23**	5
24	4	**24**	6
25	4	**25**	8
26	4	**26**	9
27	6	**27**	12
28	9	**28**	17
29	13	**29**	21
30	16	**30**	24
31	20	**31**	29
32	26	**32**	34
33	32	**33**	39
34	41	**34**	44
35	50	**35**	50
36	58	**36**	55
37	69	**37**	61
38	85	**38**	66
39	102	**39**	74
40	120	**40**	83
41	138	**41**	93
42	158	**42**	107
43	193	**43**	128
44	246	**44**	160
45	310	**45**	195
46	372	**46**	235
47	435	**47**	278
48	538	**48**	330
49	702	**49**	398
50	866	**50**	476
51	996	**51**	559
52	1130	**52**	645
53	1270	**53**	735
54	1400	**54**	833

Table H.7: Ill health early retirements per 100,000 lives (continued)

Men		Women	
Age	**Rate**	**Age**	**Rate**
55	1487	**55**	935
56	1553	**56**	1037
57	1603	**57**	1115
58	1629	**58**	1202
59	1648	**59**	1320
60	1958	**60**	1440
61	2330	**61**	1560
62	2440	**62**	1680
63	2520	**63**	1800
64	2600	**64**	1920
65	0	**65**	0

Table H.8: Promotional Salary Scale

Men		Women	
Age	**Rate**	**Age**	**Rate**
18	80.51	**18**	81.27
19	83.27	**19**	83.88
20	86.05	**20**	86.52
21	88.84	**21**	89.18
22	91.63	**22**	91.87
23	94.43	**23**	94.56
24	97.22	**24**	97.28
25	100.00	**25**	100.00
26	102.77	**26**	102.73
27	105.51	**27**	105.46
28	108.23	**28**	108.20
29	110.92	**29**	110.92
30	113.57	**30**	113.64
31	116.18	**31**	116.35
32	118.74	**32**	119.05
33	121.24	**33**	121.72
34	123.53	**34**	124.05
35	125.61	**35**	126.03
36	127.45	**36**	127.62
37	129.21	**37**	129.18
38	130.87	**38**	130.72
39	132.42	**39**	132.23
40	133.88	**40**	133.72
41	135.22	**41**	135.17
42	136.45	**42**	136.58
43	137.56	**43**	137.97
44	138.56	**44**	139.32
45	139.43	**45**	140.63
46	140.18	**46**	141.70
47	140.80	**47**	142.78
48	141.42	**48**	143.87
49	142.05	**49**	144.97
50	142.68	**50**	146.08
51	143.31	**51**	146.68
52	143.95	**52**	147.20
53	144.59	**53**	147.64
54	145.23	**54**	147.98
55	145.55	**55**	148.16
Above 55	145.87	**Above 55**	148.16

Appendix I: Results

I.1 This section gives the results of my actuarial review of the Fund's ongoing funding position (that is, assuming that the Fund continues to operate for the foreseeable future). It also contains an illustration of how sensitive the results are to the key assumptions.

Valuation results

I.2 As for the 2010 review, I have calculated the employer contribution rate as the difference between the Standard Contribution Rate (SCR) for the assumed distribution of new entrants (who will all be New section members) less the New section members' contribution rate of 5%, plus expenses. These rates are summarised in Table I.1.

Table I.1: Contribution rates

	2013 result % of pay	2010 result % of pay
Standard contribution rate (SCR)	17.2	16.9
Employee standard contribution rate	(5.0)	(5.0)
Expenses	1.2	0.9
Recommended employer standard contribution rate	**13.4**	**12.8**
Employer total contribution rate	16.4	16.4
Contributions for debt reduction	5.6	5.6
Employer actual contribution rate	10.8	10.8
Underpayment of standard contribution rate	**(2.6)**	**(2.0)**

I.3 Regulations 9(2) of the Teachers' Superannuation (Existing Members) (Jersey) Order 1986 and 14(1) of the Teachers' Superannuation (New Members) (Jersey) Order 2007 state that employer's will contribute 16.4% of pensionable salary.

I.4 I understand that employers will continue to pay 5.6% of pensionable salary towards reducing the pension increase debt, with the remaining 10.8% allocated to covering the cost of future accrual. There is therefore an underpayment of the standard contribution rate.

I.5 The assessed contribution rates include an allowance for pension increases.

I.6 I have also compared the assets of the Fund, including the present value of future contributions in respect of current members, with the liabilities, including liabilities not yet accrued to current active members. These calculations all include in full the liability for pension increases, including increases on pensions accrued before 1 April 2007. This calculation assumes that the Fund will continue to operate and accept new members for the foreseeable future.

I.7 The results of this valuation are summarised in Table I.2 below. This includes future standard contributions as an asset and all expected future service of current active members as a liability. For the future contribution asset I have taken the members contribution rate to be 5.7% based on the current average member contribution rate across both existing and new members, and the employer contribution rate to be 10.8%.

Table I.2: Balance sheets - total service

Value of	2013 result £ million	2010 result £ million
Liabilities (including pension increases)		
Pensions in payment	216.6	168.9
Deferred members	39.8	42.4
Active members – past service	181.9	183.5
Active members – future service	119.9	111.3
Total liabilities	**558.1**	**506.1**
Assets		
Future contributions	86.1	94.5
Pension increase debt	93.2	91.6
Investments	386.2	320.1
Total assets	**565.5**	**506.1**
Surplus / (deficiency)	7.4	0
Funding level	101%	100%

I.8 Table I.3 below shows the same results but without the accrual and contributions in respect of future service. This provides an alternative perspective on the current funding position, for information only.

Table I.3: Balance sheets – past service only

Value of	2013 result £ million	2010 result £ million
Liabilities (including pension increases)		
Pensions in payment	216.6	168.9
Deferred members	39.8	42.4
Active members – past service	181.9	183.5
Total liabilities	**438.3**	**394.8**
Assets		
Pension increase debt	93.2	91.6
Investments	386.2	320.1
Total assets	**479.4**	**411.7**
Surplus / (deficiency)	41.1	16.9
Funding level	109%	104%

I.9 After taking into account the pension increase debt payments which are expected to be paid by the States of Jersey there is a small surplus in the Fund. If the experience of the Fund is exactly in line with the assumptions made and all the recommended contributions are paid on schedule then there would be the same surplus at the next actuarial review. However, the Management Board should be aware of the uncertainties involved. In reality, due to random variation, the experience of the Fund is unlikely to be completely in line with assumptions and unanticipated events can occur.

I.10 Keeping the employer's contribution rate at 10.8% instead of implementing the new, higher rate of 13.4% is expected to lead to a gradual worsening of the Fund's financial position.

I.11 The benefit cashflows of the Fund are linked either to Jersey inflation (for pensioners, deferred pensioners and active members benefits for the period after withdrawing or retiring from the Fund) or (for current active members for the period before leaving the Fund) linked to individual salary increases. On average these increases will be in line with Teachers overall inflationary pay awards, if the relative salary distribution of members remains constant.

Sensitivity of results

I.12 In reality the future experience of the Fund is unknown, and so the future financial position is uncertain. The results of an actuarial calculation are sensitive to the choice of assumptions made. The Management Board should be aware of the potential impact of changing the key valuation assumptions, which is broadly equivalent to the impact of future experience differing from expected.

I.13 Three of the most important valuation assumptions are:

- The discount rate (net of price inflation)
- The level of general salary inflation (net of price inflation)
- The mortality of pensioners.

I.14 To enable the Management Board to understand the relative sensitivity of the results to these assumptions I have produced results on the following variant sets of assumptions:

(i) Assuming that the real discount rate (that is, the prudent long term expected return on the Fund's assets) is 0.5% lower or higher.

(ii) Assuming that the general level of salaries increases (net of price increases and excluding progression and promotional increases) is 0.5% lower or higher.

(iii) Assuming that pensioners will on average have the chance of dying of a person one year younger or older than the assumption used in the valuation.

I.15 Table I.4 shows the sensitivity of the main results to using a lower and higher real discount rate.

Table I.4 – Sensitivity to real discount rate

Value of (£ million)	**Real discount rate**		
	Lower (3%)	**Central (3½%)**	**Higher (4%)**
Total service liabilities	613	558	511
Total assets (incl. future contributions and PI debt)	577	565	555
Surplus / (deficiency)	(36)	7	44
Employers' standard contribution rate	**16.0%**	**13.4%**	**11.1%**

I.16 Table I.5 shows the sensitivity of the results to a lower and higher rate of real earnings growth.

Table I.5 – Sensitivity to earnings growth

Value of (£ million)	**Real earnings growth**		
	Lower (1%)	**Central (1½%)**	**Higher (2%)**
Total service liabilities (incl. PI)	541	558	577
Total assets (incl. future contributions)	562	565	569
Surplus / (deficiency)	21	7	(7)
Employers' standard contribution rate	**12.1%**	**13.4%**	**14.7%**

I.17 Table I.6 shows the sensitivity of the results on the assumption that members who retire (or have retired) on age grounds will experience mortality as if they were one year younger or one year older.

Table I.6 – Sensitivity to mortality

Value of (£ million)	Mortality assumption		
	One year younger than central	Central	One year older than central
Total service liabilities (incl. PI)	569	558	547
Total assets (incl. future contributions)	566	565	565
Surplus / (deficiency)	(3)	7	18
Employers' standard contribution rate	**13.6%**	**13.4%**	**13.1%**

I.18 Each table shows the effect of varying a single assumption in isolation. Changing two or more assumptions would have a broadly cumulative effect.

Ability to continue providing pension increases

I.19 The cost of providing future pension increases is approximately 28% of the Fund's total liabilities. The Fund could therefore afford to provide some level of pension increases as long as it remained at least 72% funded at each formal valuation.

I.20 In the short term, the most volatile element is the value of the Fund's invested assets. Table I.7 shows that the invested assets would need to fall by around 42% overnight (from £386m to £223m) for the current funding level to fall to the 72% level.

Table I.7 – Reduction in assets that would lead to a 72% funding level

Value of	Current position £ million	72% funded £ million
Total liabilities (including pension increases)	558	558
Assets		
Future standard contributions	86	86
"Pension Increase debt"*	93	93
Investments	386	223
Total assets	565	402
Surplus / (deficiency)	7	(156)
Funding level	**101%**	**72%**

Appendix J: Solvency

J.1 The calculations above assume that the Fund will continue to be open to new members and new accruals for the foreseeable future. The Management Board should also be aware of the solvency level of the Fund. This values the liabilities assuming that the Fund discontinues (that is, there is no future accrual of benefits and no link to future salary increases). It also assumes that the Fund will either be bought out with an insurance company or run as a closed fund with no employer contributions. In that scenario the Fund (or the insurance company, if bought out) would have to adopt a very cautious investment strategy. This would reduce the return on the Fund's assets.

J.2 For the purposes of this report I have used assumptions consistent with those used by the Jersey Public Employees Contributory Retirement Scheme (PECRS) in their assessment of solvency for their 2013 review. The assumptions I have used are summarised in Table J.1. As it may not be straightforward to buy-out benefits linked to Jersey inflation, I have assumed that benefits would be linked to UK RPI. I have used the UK Pension Protection Fund assumptions to estimate of the expenses of winding up the Fund.

Table J.1: Solvency assumptions

	2013 review	2010 review
Discount rate non-pensioners (net of UK RPI)	-0.25%	-0.1%
Discount rate current pensions (net of UK RPI)	0.0%	0.4%
Mortality (compared to ongoing)	No change	No change
Expenses	PPF basis	PPF basis

J.3 Using these assumptions I assess that the (past service) liabilities of the JTSF on a solvency basis are around £800m. Compared to the invested assets of £390m this gives a solvency level of around 50%. This represents the average proportion of members' current accrued benefits that could be provided on winding the Fund. If the 'pension increase debt' amount were paid in full immediately that would increase the assets held to around £480m and the solvency level to 60%. These figures are summarised in Table J.2.

Table J.2: Solvency position (nearest 5%)

Solvency level	2013 review	2010 review
Pension increase debt paid	60%	60%
Pension increase debt not paid	50%	45%

J.4 The solvency level has slightly improved since the 2010 valuation (although due to rounding, it is not apparent in respect of the figures above allowing for repayment of the pension increase debt).

J.5 Please note that this estimate of solvency is not a guarantee of the cost of winding up the Fund. Insurer's buy-out terms vary with market conditions and supply and demand and so the only way to be sure what a buy-out would cost is to obtain a quote. The cost of buying-out may also be affected by market capacity at the time.

Appendix K: Developments since the 2010 Review

Actuarial review as at 31 December 2010.

K.1 The review as at 31 December 2010 was carried out using a market-based valuation approach using the Entry Age Method to determine the standard contribution rate and the employers' recommended contribution rate. The main financial assumption was a future long-term rate of return of 3½% a year in excess of prices.

K.2 The recommended employer contribution rate was 12.8% of pensionable salaries in respect of future service. In practice 10.8% has been paid, along with 5.6% in respect to repaying the pension increase debt, to give a total employer contribution rate of 16.4% of pensionable salaries.

K.3 The valuation initially reported a deficit of £91.6m, which was recognised as the pensions increase debt. Therefore there was no surplus or deficit at the 2010 valuation.

General salary increases and pension increases since 2010

K.4 Over the inter-valuation period pensions in payment and deferred pensions have been increased in line with Jersey inflation. Pensions in payment and deferred pensions have been increased each January in line with the annual increase in the Jersey Retail Prices Index to the end of the preceding December.

K.5 Members' salary increases each year (excluding progression and promotional increases) are set by the States Employment Board. These increases are applied each year on 1 January.

K.6 Pension increases and general salary awards (excluding progression and promotional increases) are summarised in Table K.1:

Table K.1: General salary and pension increases

General salary increases		Pension increases	
Date of award	**Rate**	**Date of award**	**Rate**
January 2011	2.0%	January 2011	2.3%
January 2012	0.0%	January 2012	5.0%
January 2013	1.0%	January 2013	2.1%
January 2014	4.0%	January 2014	1.9%

Development of the funding position since the 2010 review

K.7 The funding position has improved since the last review. There was no surplus or deficit at the last review, but since then a surplus of £7.4 million has emerged.

K.8 The main factors which have improved the funding position since 2010 are:

- higher investment returns than expected, and
- general pay awards and pension increases being lower than expected.

K.9 This main factors which have worsened the funding position since 2010 are:

- the treatment of the pension increase debt, and
- miscellaneous factors, including the effects of the recent data cleansing exercise.

K.10 I have also revised the mortality assumptions used in the review based on the actual experience of the Fund and wider trends. Taken together these have slightly reduced the liabilities of the Fund compared to the previous review.

K.11 Table K.2 below shows the approximate impact of each of these effects on the deficit in the Fund.

Table K.2: Development of the funding position since the 2010 review

	£ million	Comments
Surplus as at 31 December 2010	0	
Interest on surplus	0	
Gain from pension increase	4.6	This reflects the pension increase of 2.1% at 2013 and 1.9% at 2014 being slightly lower than assumed in the 2010 valuation. Note that the 2011 and 2012 pension increases were taken into account for the 2010 valuation.
Gain from pay increases	16.3	This reflects the 0% salary increase applied in 2012, the 1% salary increase in 2013 and the 4% salary increase in 2014, all lower than assumed in the 2010 valuation. Salary growth affects both the (past and future service) liabilities and the value of the future contribution asset. The figure shown here is the approximate net effect from the 2012, 2013 and 2014 salary increases. Note that the 2011 salary increase was taken into consideration for the 2010 valuation.
Contributions	(3.4)	This loss reflects that employer contributions during 2011-2013 were paid at the rate of 10.8% of pensionable salaries, 2.0% lower than the standard rate determined in the 2010 valuation.
Investment gain (loss)	17.3	This reflects the investment outperformance in the three years since 31 December 2010.
Miscellaneous	(5.8)	Demographic experience and other effects.
Surplus as at 31 December 2013	29.0	On 2010 assumptions
Write-down of pension increase debt asset	(7.9)	We have taken the debt into the balance sheet at below face value, to reflect the difference between the expected interest payable on the debt and the valuation discount rate.
Future contributions	(15.8)	This reflects the reduction in the future contribution asset due to future employer contributions being paid at the rate of 10.8% of salaries instead of the recommended rate of 13.4%.
Changes to mortality assumptions	2.1	
Surplus as at 31 December 2013	7.4	On 2013 assumptions

Appendix L: Investment issues

L.1 About half of the past service liabilities are salary-linked (in respect of active members) with the remainder predominantly price-linked (pensions in payment and deferred members). The Fund remains open to new entrants and the accrual of salary-linked benefits continues, and so the liability profile extends a long period into the future.

L.2 The Board's current investment strategy is to invest over 90% of the Fund in return-seeking assets (equities and property) with the remainder mainly in bonds and cash, with the aim of achieving higher long-term returns from the equity investment. It is often argued that, over the long-term, equity investment is likely to lead to higher returns than investment in bonds, and so equity investments can be regarded as appropriate for pension funds with a long liability profile.

L.3 However, equity markets are volatile (as demonstrated in L.9) and so there are risks. Over the long-term, the Fund would remain exposed to the risk that future investment returns will be insufficient to meet the funding objective. Over the short-term, there is particular risk if assets have to be realised in order to pay benefits.

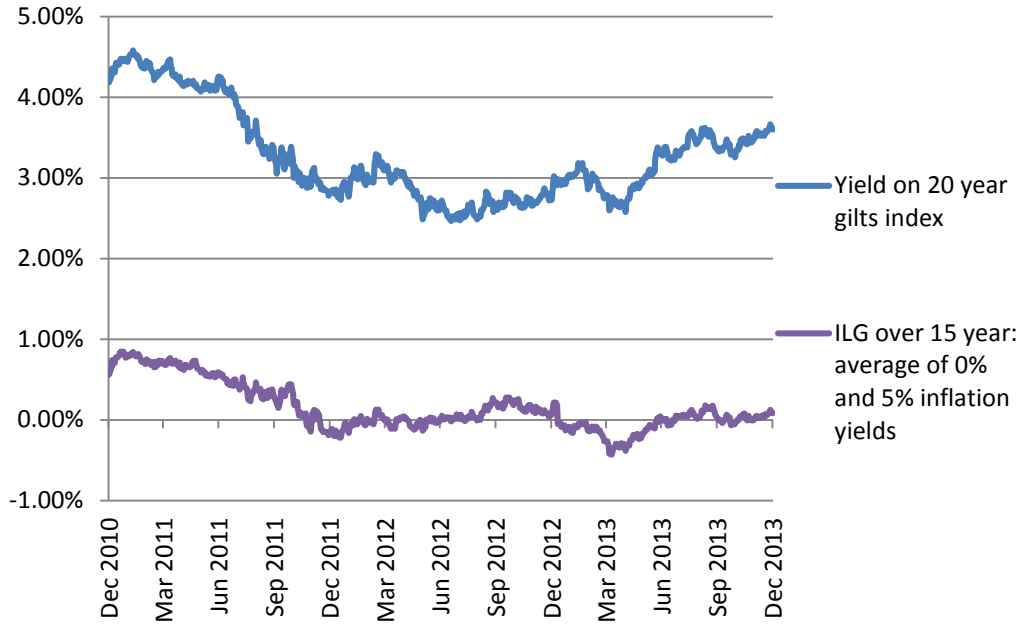
L.4 If sufficient assets were available, it would be possible to reduce this potential volatility by means of a portfolio consisting of suitable bonds, chosen so that the projected income was similar in profile and term to the projected benefit (and other) outgo. Although the potential gains of equity investment would be lost, the assets and liabilities would then be more closely matched (thus reducing the risk that falls in asset values will not be matched by similar falls in the values of the liabilities, thereby reducing the funding and/or solvency levels).

L.5 Previously, the combined total of contribution income and investment income (excluding unrealised gains and losses) was (just about) sufficient to meet outgo on benefits and expenses. However due to a large number of retirements in 2013 this is no longer the case. Therefore, it may be necessary to realise assets to meet expenditure on a more regular basis.

Investment markets

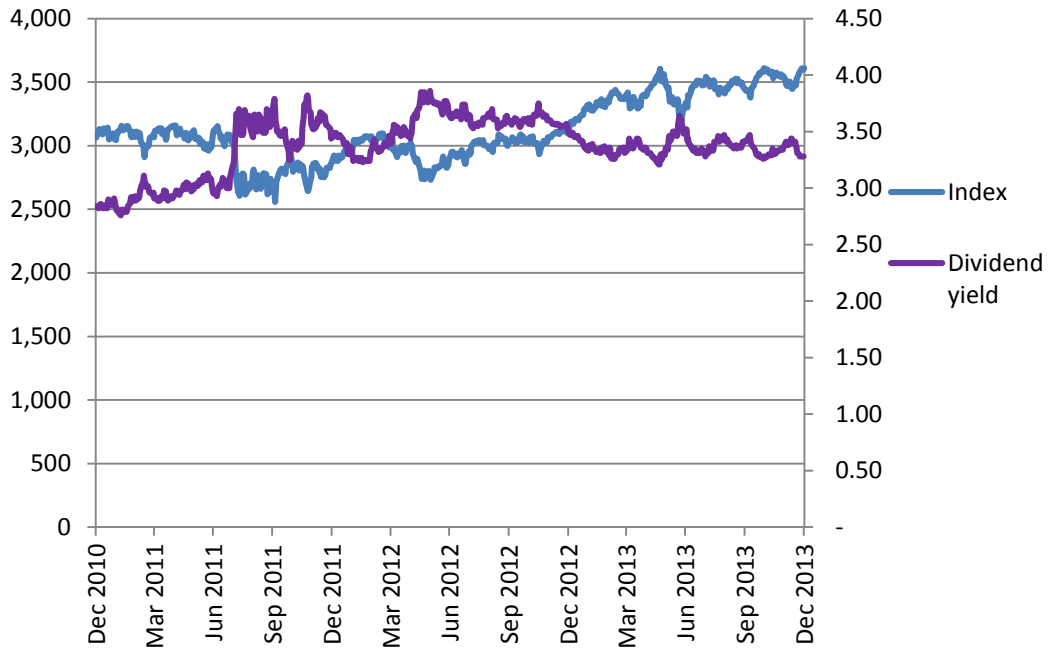
L.6 Because of monetary policy and investor demand for secure assets, gilt yields (for both conventional and index-linked gilts) have fallen over the inter-valuation period.

Graph L.1: Gilt yields over the inter-valuation period



L.7 Equity markets have shown some volatility over the inter-valuation period.

Graph L.2: FTSE All-Share index and dividend yield over the period.



Appendix M: Risks and uncertainties

M.1 There are a number of financial risks that the Fund is exposed to, which the Management Board should keep under review. Some of the more significant of these are summarised in Table M.1 below.

Table M.1: Material financial risks to the Fund

Risk	Discussion
Sponsor risk	The risk that the States will not be willing or able to continue its financial support for the Fund.
Investment underperformance	If the Fund's invested assets return less than assumed in the valuation there will be a shortfall that would need to be met from higher contributions or benefit reductions.
Mismatching risk	As discussed in Appendix I, if the Fund was invested in matching assets that would reduce the volatility of the surplus/deficit emerging at each review. However, this would come at the cost of lower expected returns (so employers would have to pay contributions or benefits would have to be reduced). Note that perfectly matching assets are unlikely to be available.
Longevity risk	Pensions are paid for life. If the members and their dependants live longer on average than expected the cost of benefits will be higher than expected.
Option risk	Members have a number of options in the Fund such as transferring benefits or buying added years. If the terms of these turn out to have been more generous to the member than expected there will be an extra cost to the Fund.
Earnings increases	If the increases in Teachers' earnings on average are higher than assumed in the valuation then their pension benefits will be higher than assumed. This would increase the cost to the Fund.

M.2 The Management Board should also be aware that in any actuarial calculation assumptions are made about future experience, which may or may not be borne out in practice. This means that the results of such a review are inherently uncertain.

Appendix N: Limitations

N.1 This report is intended solely for the use of the Management Board of the Jersey Teachers' Superannuation Fund for the purposes of:

> providing a general understanding of the level of the liabilities in the Fund, relative to the assets held, and

> assessing the adequacy of the contributions payable into the Fund.

N.2 The information and advice in this report should not be relied upon, or assumed to be appropriate, for any other purpose or person. GAD does not accept any liability to third parties, whether or not GAD has agreed to the disclosure of its advice to the third party.

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N.5 GAD relies on the accuracy of data and information provided by the Dedicated Pensions Unit (DPU) on behalf of the Fund. GAD does not accept responsibility for advice based on wrong or incomplete data or information provided by DPU.