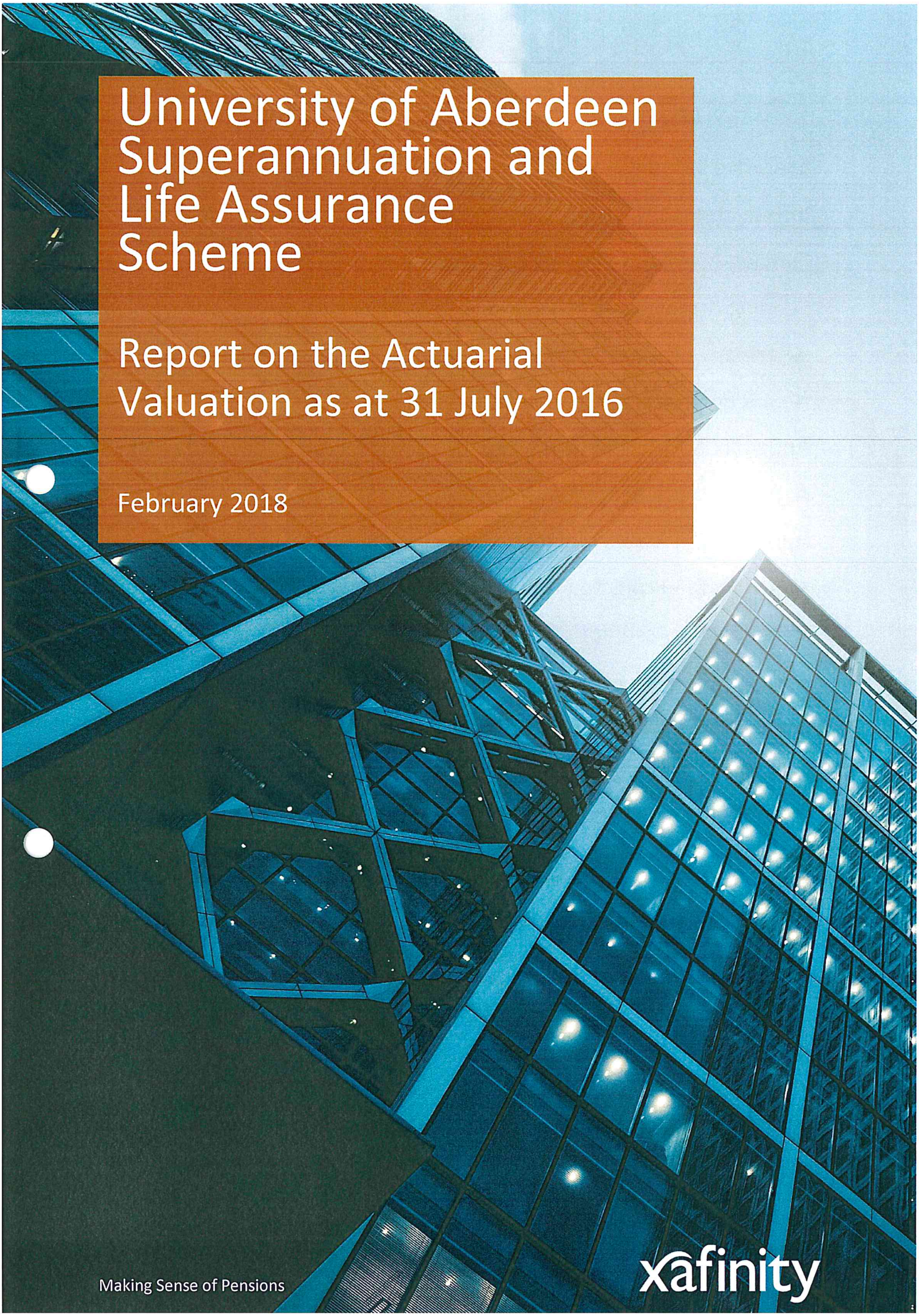
University of Aberdeen Superannuation and Life Assurance Scheme

Report on the Actuarial Valuation as at 31 July 2016

February 2018



Making Sense of Pensions

xafinity

Contents

This report and the work carried out in connection with it fall within the scope of Technical Actuarial Standards TAS 100: Principles for Technical Actuarial Work, and TAS 300: Pensions, issued by the Financial Reporting Council. I confirm that this work complies with these standards.

This report is solely for the purpose described on page 3. It should not be relied upon for any other purpose and it should be noted that neither I nor Xafinity Consulting Limited accept liability to any third party in respect of the contents.

Executive Summary

The Trustees of the University of Aberdeen Superannuation and Life Assurance Scheme ("the Scheme") have recently completed a valuation of the Scheme as at 31 July 2016. This report sets out the approach adopted by the Trustees, the results obtained and the actions taken in the light of those results.

The key results are as follows.

Main funding assessment

£23.17m
Deficit on the Trustees agreed assumptions and methodology

85%
Funding level

18.4%
University's future service contribution rate

In funding the Scheme, the Trustees' key objective is to ensure that there will be sufficient assets to meet all benefit payments as they fall due. With this in mind, the Trustees have set a target reserve for the Scheme based on a prudent estimate of the amount needed to meet all payments in respect of the benefits earned up to the valuation date.

The funding assessment gives a target reserve of £158,685,000 at 31 July 2016. This compares with an asset value at the same date of £135,516,000. Thus, there was a funding deficit of £23,170,000[1] and a funding level (assets expressed as a percentage of the target reserve) of 85.4%. Since the valuation's effective date, this position has improved significantly such that as at 31 July 2017 the funding shortfall was £8,916,000.

In order to address the funding shortfall, the University of Aberdeen ("the University") has agreed a recovery plan with the Trustees. The recovery plan was based on the funding position as at 31 July 2017. The aim of the recovery plan is for the funding shortfall to be removed over a period of 11 years and 1 month from 1 January 2018. The agreed additional employer contributions will be £725,000 per annum, payable monthly from 1 January 2018 to 31 January 2029.

[1] Please note that some numbers may not add up due to rounding

Executive Summary

To fund the continuing benefits, the University will contribute 18.4% of members' pensionable salaries from 1 January 2018 to 31 January 2029. This is in addition to the contributions under the recovery plan. The University contribution includes an allowance for the expenses of administering the Scheme.

In respect of salary sacrifice members, the University will contribute a further 7.05% of pensionable salaries. Non-salary sacrifice members will also contribute 7.05% of pensionable salaries.

£119.1m

Estimated winding-up deficit

Winding-up assessment

I have also completed a winding-up assessment of the Scheme. This determines the extent to which the Scheme's assets would be sufficient to secure members' benefits by the purchase of insurance policies if the Scheme were to be wound up. The winding-up assessment places a value on the Scheme's liabilities as at 31 July 2016 of £254,820,000, compared with the asset value of £135,732,000. This gives a winding-up funding level of 53%.

The winding-up liabilities are much higher than the ongoing funding liabilities because the estimated cost of purchasing insurance policies to secure the benefits is significantly higher than the anticipated cost of providing the benefits from the Scheme's assets.

Introduction

Background and purpose

The Trustees of the Scheme have undertaken a formal valuation of the Scheme as at 31 July 2016.

The purpose of this report is to provide a formal record of the valuation, including the method and assumptions adopted by the Trustees, the results of the valuation and the actions taken in the light of the results.

The report is addressed to the Trustees. Legislation requires the Trustees to make it available to the University within 7 days of receipt.

Significant events since the previous valuation

The last valuation was undertaken with an effective date of 31 July 2013. Since then there have been a number of events which have had a substantial impact on the Scheme. Foremost among these are as follows:

- Gilt yields have reduced to historically low values which has caused an increase in Scheme liabilities;
- Political events have affected the financial world e.g. Brexit;

Funding Approach and Assumptions

The funding objective

The Trustees' key funding objective is to ensure that there will be sufficient assets to meet all benefit payments as they fall due.

With this in mind, the Trustees have a funding target for the Scheme based on a prudent estimate of the amount needed to meet those payments.

Methodology

Benefits already accrued

In funding the Scheme, the Trustees have assumed that the Scheme will continue in its current form in the long term, with benefits being paid directly from Scheme assets. The Trustees have also adopted the Projected Unit actuarial funding method.

The valuation calculations determine the value of assets required to meet benefit payments. These calculations include an allowance for the invested assets to grow between the valuation date and the time when benefits are paid. Under the projected unit method, they also include an allowance for growth in members' pensionable salaries between the valuation date and their leaving the Scheme.

Future benefit accrual

Under the projected unit method the level of contributions required to fund the accrual of further benefits is assessed over the 'control period', which in this case is 1 year.

Funding assumptions

The methodology used in deriving the assumptions are described in detail in my report titled "Statement of funding principles University of Aberdeen Superannuation and Life Assurance Scheme", dated 21 December 2017

Placing a value on the Scheme's liabilities requires a number of assumptions to be made about the future. Such assumptions include how long members might live after retiring and the return that will be generated by the Scheme's assets.

After taking advice from me as Scheme Actuary, the Trustees have adopted what they consider to be 'prudent' funding assumptions. The Trustees' assumptions are prudent in that they are deliberately cautious about the future. Using such assumptions increases the target funding reserve and reduces the risk that the combination of the accumulated assets and future contributions will prove to be inadequate. It is, of course, impossible to eliminate this risk completely.

Funding Approach and Assumptions

Sponsor Covenant

The Scheme is supported by the covenant of the University. Generally speaking, covenant is the extent of a sponsor's obligation and financial ability to support its pension scheme now and in the future. The sponsor's covenant underwrites the risks to its pension scheme. The Trustees therefore appointed PWC to review the strength of sponsor covenant. PWC concluded in their report of November 2016, and an Addendum dated December 2016, that the University could provide a level of support that would be deemed to be "Tending to Weak". The University later appointed Mercer to respond to the covenant report by PWC. Mercer concluded in their report dated April 2017 that the PWC report is too cautious and according to them, a more appropriate band for the covenant strength would be "Tending to Strong".

Other considerations

The Scheme's investments include a number of annuity contracts. I have shown the value of these as both a liability and an asset, as the proceeds from these policies will generally match the associated benefits.

Whilst the Scheme is continuing, an allowance for expenses, including statutory levies and Death in Service premiums is included in the University's contribution rates.

The salary-related lump sum benefit payable on the death of an active member is insured. This benefit is excluded from the accrued liabilities.

Funding Assessment

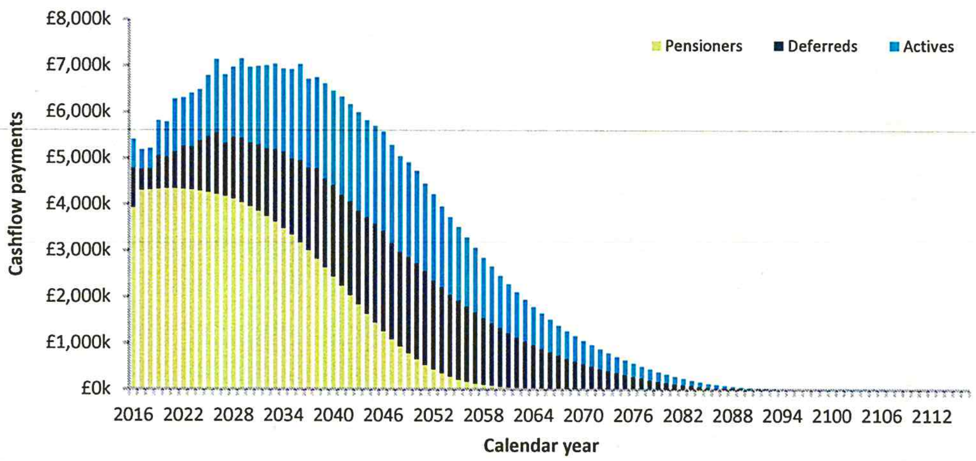
Benefits accrued before the valuation date

Projected benefit payments

I have used the Trustees' assumptions about the future to project the benefits that will be paid to all members in respect of their entitlements at the valuation date. These projections are set out in the following chart and represent all cash payments expected to be made over the lifetime of the Scheme.

2030

Projected peak of Scheme benefit payments



It will be noted from the chart that the Scheme will be making significant benefit payments for decades to come, with the projected peak coming around 2030 and the final payments not occurring until towards the end of the century.

Although the projection gives an idea of how benefit payments will progress, the amounts and timing are not certain. For example:

- The timing and amount of benefit payments will depend heavily on the take-up of member options and on how long members live after retiring.
- The level of benefit payments to active members will depend on salary growth before they retire and on price inflation after they have retired.
- The level of benefit payments to current and deferred pensioners will depend on price inflation both before and after they have retired.

Funding Assessment

£23.17m

Deficit at 31 July 2016

£20.57m

Increase in deficit over the valuation period

The funding position

The Trustees' target reserve (known as the 'technical provisions') represents a prudent estimate of the amount needed at the valuation date to meet the projected benefit payments as they fall due. The technical provisions and the resultant funding position at the valuation date are set out in the following table. The corresponding results of the last valuation are shown for comparison purposes.

	Funding Assessment as at 31 July 2016 £000s	Funding Assessment as at 31 July 2013 £000s
Past service liabilities		
• Active members	38,047	35,745
• Deferred pensioners	36,376	21,907
• Current pensioners	82,959	52,221
• Insured pensioners	1,303	-
Total past service liabilities (L) (Funding target or 'technical provisions')	**158,685**	**109,873**
Assets		
• Total assets shown in accounts	134,307	106,919
• Insured pensioners	1,303	-
• Net current asset	(95)	351
Total assets (A)	**135,516**	**107,270**
Funding surplus / (deficit) (A minus L)	**(23,169)**	**(2,603)**
Funding level (A as a percentage of L)	**85%**	**98%**

*Figures may not tally due to rounding

Reconciliation with the results of the previous valuation

Clearly the funding position has reduced since the last valuation.

The most significant influences on the funding position have been as follows:

- Changes in the financial assumptions used to value the liabilities to reflect changes in market conditions;
- Partially offset by strong investment growth, deficit contributions paid over the period, and lower than expected salary growth.

Funding Assessment

£14.7m

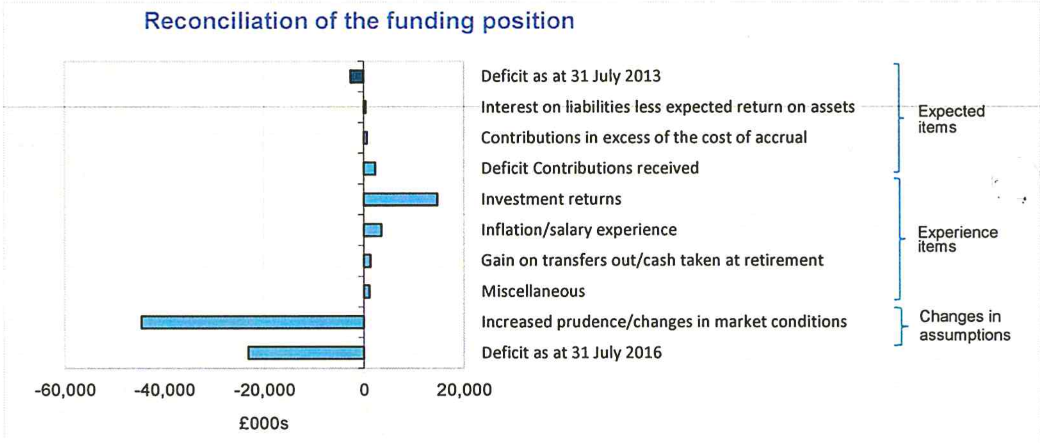
Asset gain over the valuation period due to investments being higher than expected

£ 44.6m

Increase in Scheme liabilities over the valuation period due to changes in market conditions

A detailed reconciliation is set out in the following chart. Within the chart, I have grouped the items into:

- those items which would have been expected if experience since the previous valuation had been in line with the assumptions
- those items due to experience differing from the assumptions made at the previous valuation
- those items due to changes in assumptions



Further information on the investment returns and the contributions paid in the period between the two valuations may be found in Appendix C.

Addressing the deficit

In order to address the funding shortfall, the University has agreed a recovery plan with the Trustees. The aim of the recovery plan is for the funding shortfall to be removed over a period of 11 years and 1 month from 1 January 2018. The agreed additional Employer contributions will be £725,000 per annum, payable monthly from 1 January 2018 to 31 January 2029.

The Recovery Plan will be regularly monitored by the Trustees and will be reviewed at the time of the next valuation, to ensure that it remains sufficient to address the funding shortfall.

Funding Assessment

Future service results

In addition to assessing the position in relation to benefits already accrued, I have assessed the contributions required to fund further benefits. The results are as follows:

+8.04%

Increase in the cost of future pension accrual since the last valuation

	% Pensionable Salaries
Contributions to fund the accrual of further benefits	25.29%
Less member contributions	7.05%
University's future service contribution rate to the next valuation	18.24%

To fund the continuing benefits, the University will contribute 18.4% of members' pensionable salaries from 1 January 2018 to 31 January 2029. This is in addition to the contributions under the recovery plan. The University contribution includes an allowance for the expenses of administering the Scheme.

In respect of salary sacrifice members, the Employer will contribute a further 7.05% of pensionable salaries. Non-salary sacrifice members will also contribute 7.05% of pensionable salaries.

Material developments since the effective date

From the effective date of the valuation, 31 July 2016, to the date of this report, financial conditions have been volatile, with significant movements in the equity and gilt markets. These movements have had a material impact on the valuation results shown above.

An annual funding update has been carried out as at 31 July 2017 which shows the following results:

	£000s
Past Service Liabilities (L)	158,552
Assets (A)	149,636
(Deficit) (A minus L)	(8,916)
Funding Level (A as a percentage of L)	94%

Winding-Up Assessment

Background

I am required to assess the funding position of the Scheme if it were to close immediately, with all benefits being secured by the purchase of insurance policies. Providing this winding-up or "solvency" assessment is a statutory requirement; it does not imply that the Scheme is to be wound up.

Approach taken

The only accurate way to assess the true cost of winding up would be to obtain quotations from a number of insurance companies. I have not done this, but instead have estimated the cost using principles similar to those adopted by insurers when pricing annuities. Clearly, this approach will not be as accurate as obtaining actual quotations, but I am satisfied that it is sufficient for the present purpose. An actual wind-up, at a different date, could have a significantly different funding position. Full details of the assumptions used are set out in Appendix E.

Results

£119.09m

Estimated winding-up deficit at 31 July 2016

£ 6.04m

Estimated allowance of winding up expenses

	Winding-up Assessment as at 31 July 2016 £000s
Winding-up liabilities	
• Active members	75,884
• Deferred pensioners	73,924
• Current pensioners from cash flow	97,456
• Insured Pensioners	1,520
• Winding-up and payment expenses	6,036
Total winding-up liabilities (L)	**254,820**
Assets	
• Total assets shown in accounts	134,307
• Insured pensioners	1,520
• Net current assets	(95)
Total assets (A)	**135,732**
Winding-up surplus or (deficit) (A minus L)	**119,088**
Winding-up funding level (A as a percentage of L)	**53%**

Winding-Up Assessment

The funding level on winding-up (53%) is much lower than the ongoing funding level set out in Section 3 of this report (85%). This is due to the difference between the anticipated cost of providing the benefits from the Scheme and the cost of securing those benefits through the purchase of insurance policies. This is partly because insurers include margins for profit and operating expenses in their prices, but is mainly because insurers are required to follow conservative investment strategies and can't request more money if actual experience turns out to be more costly than expected.

Effect on member's benefits

If a pension scheme winds up at a time when there are insufficient assets to secure all benefits with an insurer, the shortfall becomes a debt due from the sponsor to the scheme. If the sponsor has had an insolvency event, the extent to which any or all of that debt can be recovered by the Trustees will depend on the value that can be realised from what remains of the sponsor's assets and the priority given to other creditors.

If the debt is not recovered in full, the assets will not be sufficient to secure all benefits. In such cases, current legislation aims to ensure that members receive at least a specified proportion of their entitlements. This may be through the Trustees purchasing insurance policies, where possible, or may be through the government's pensions lifeboat, the Pension Protection Fund (PPF).

The "compensation" paid by the PPF is based on the benefits accrued by each member within their own pension scheme, but with some adjustments. For example:

- Members yet to reach their Normal Pension Age have their benefits reduced by 10% and restricted so that they are no greater than a limit set by the PPF.
- No increases are applied to pension accrued before April 1997.
- Increases to pension accrued after April 1997 are limited to a maximum of 2.5% each year (or the increase in the Consumer Prices Index if lower).

If a pension scheme does not have sufficient funds to secure the equivalent of PPF compensation then it is likely to enter the PPF. If, on the other hand, the assets are sufficient to secure PPF compensation then the scheme's trustees must first apply the available assets according to the order set out in legislation, and then any balance in accordance with their trust deed.

Winding-Up Assessment

The following table sets out the order of priority that the Trustees would follow if the University were to become insolvent. It also sets out the extent to which the assets available at the valuation date could secure the benefits in each category.

	Winding-up Assessment as at 31 July 2016 Proportion of Benefits Covered by Scheme Assets
1 – Insured annuity contracts	100%
2 - Benefits up to the PPF level	70%
3 - Benefits above the PPF level	0%

At 31 July 2016, the Scheme did not have sufficient assets to secure the equivalent of PPF benefits. If the University had become insolvent at that time, and if no additional funds were secured, the Scheme would have been likely to enter the PPF and members would have received the benefits described above.

Next Steps and the Next Valuation

Next steps

The final steps of the valuation were to sign the Recovery Plan and Schedule of Contributions. These were signed on 8 January 2018. I, on behalf of the Trustees, submitted the details of the valuation to the Pensions Regulator on 8 January 2018.

Between now and the next valuation

Between now and the next valuation I will provide annual reports to the Trustees, setting out how the funding position has evolved and the key reasons for any changes.

These reports, along with regular reviews of the University's covenant, will enable the Trustees to monitor the funding of the Scheme. If it appears to the Trustees that the Recovery Plan is no longer likely to meet the funding objective, the Trustees should consider what remedial actions might be taken.

I look forward to continuing to work with the Trustees on these matters.

Signature:		**Date:**	2 February 2018
Name:	Jonathan Seed	**Qualification:**	Fellow of the Institute and Faculty of Actuaries
Address:	Scotia House Castle Business Park Stirling FK9 4TZ	**University:**	Xafinity Consulting Limited

Appendix A – Membership Data

2289

Total Scheme membership at current valuation date

2272

Total Scheme membership at previous valuation date

Below is a summary of the membership data used in my assessment and how this data compares with that used for the previous valuation.

I have been provided with membership data by the Equiniti administration team. I have performed a number of checks on the data and I am satisfied that it is sufficiently accurate for the purposes of this valuation.

Active members

	Current Valuation as at 31 July 2016			Previous Valuation as at 31 July 2013		
	Number	Pensionable Salaries[2]	Average Age[3]	Number	Pensionable Salaries[1]	Average Age[2]
Males	203	£4,664k	55	226	£5,080k	49
Females	406	£8,978k	52	468	£8,590k	46
Total	**609**	**£13,642k**	**53**	**694**	**£13,670k**	**47**

Deferred pensioners

	Current Valuation as at 31 July 2016			Previous Valuation as at 31 July 2013		
	Number	Deferred Pensions[1]	Average Age[2]	Number	Deferred Pensions[1]	Average Age[2]
Males	166	£327k	53	157	£310k	50
Females	523	£695k	50	466	£620k	48
Total	**689**	**£1,022k**	**51**	**623**	**£930k**	**48**

Pensioner members[4]

	Current Valuation as at 31 July 2016			Previous Valuation as at 31 July 2013		
	Number	Pensions in payment[1]	Average Age[2]	Number	Pensions in payment[1]	Average Age[2]
Males	323	£1,871k	73	317	£1,620k	73
Females	668	£2,407k	73	638	£2,070k	72
Total	**991**	**£4,278k**	**73**	**955**	**£3,690k**	**73**

[2] Pensionable Salaries and Pensions in payment are as at date of valuation; deferred pensions are as at date of leaving.

[3] Weighted by pension

[4] Excludes values of secured benefits

Appendix B – Scheme Benefits

The actual benefits due to members will be based on the Trust Deed and Rules.

The Scheme guide and factsheets available to members provide a summary of the benefits valued.

The Scheme does not have a recent history of awarding discretionary benefits to members. Accordingly, I have made no allowance in my calculations for the granting of such benefits.

No allowance has currently been made to equalise the accrual of GMP's for males and females in line with the majority of contracted-out pension schemes. There is currently considerable debate about what exactly the law requires by way of equalisation. The financial impact of equalising GMP is therefore uncertain.

Appendix C – Assets and Investment Strategy

Assets held at the valuation date

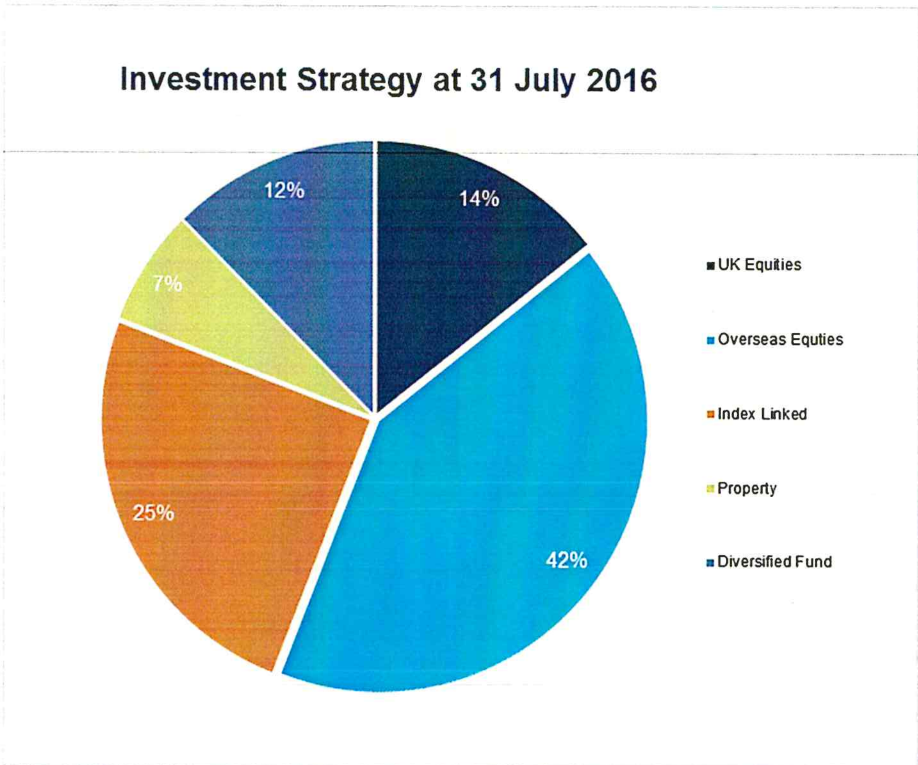
I have taken the value of the Scheme's assets from the Trustees' audited Report and Accounts as at 31 July 2016. The accounts state that at that date the Scheme had invested assets of £134,307,108 (excluding AVCs of £303,060). The following chart illustrates how those assets were invested.

75%

return seeking assets

25%

matching assets



In addition to the assets set out above, the accounts show that there were net current liabilities of £94,603. This gives a total asset value (excluding AVCs) of £134,212,505 for use in my assessment, as follows.

	Assets as at 31 July 2016 £000s	Assets as at 31 July 2013 £000s
Invested assets (excluding AVCs)	134,307	106,919
Net current asset / (liability)	(95)	351
Total available assets	134,212	107,270

A number of Scheme pensions are paid from annuity policies held in the name of the Trustees. In the valuation calculations, I have shown the value of these as both an asset and liability of £1,303k.

Appendix C – Assets and Investment Strategy

Investment strategy

The assets held at the effective date of the valuation broadly reflected the Trustees' investment strategy, as set out in the Trustees' Statement of Investment Principles. This strategy consists of investing approximately 75% of the assets in return-seeking asset classes, such as equities, and approximately 25% of assets in bonds. This distribution is intended to reflect the liability profile of the Scheme and the Trustees will keep the division of assets under review.

Investment returns

The funding principles adopted for the 2013 actuarial valuation anticipated long term returns on the fund assets averaging around 5.75% per annum. The returns on the Scheme's assets during the period were above that level and so, in isolation, this would have created a gain of around £14.7 million.

Contributions paid to the Scheme

The Trustees have agreed a Recovery Plan with the University. That plan required additional contributions from the University. Those include 5.8% of pensionable salary, payable in equal monthly instalments from 1 August 2016 to 31 December 2017 and payments of £725,000 per annum, payable monthly From 1 January 2018 to 31 January 2029.

The contributions actually paid between the two valuations were as follows.

£10.28m

Total Employer and Employee contributions paid over the valuation period

Year Ending	Employee Contributions (£000s)		Employer contributions (£000s)		Total (£000s)
	Normal contributions	AVCs	Other contributions	Deficit reduction contributions	
31 July 2014	46	59	2,663	794	3,562
31 July 2015	62	35	2,627	792	3,516
31 July 2016	41	30	2,403	729	3,203
Total	149	124	7,693	2,315	10,281

The auditors have confirmed that the contributions paid were in line with the schedules of contributions in force over the period.

Appendix D – Projected funding position

31 July 2019

Effective date of next formal valuation of the Scheme

The next valuation

The next formal valuation of the Scheme is due to take place as at 31 July 2019. Below, I project the ongoing and winding-up positions to the next valuation date.

The future is uncertain and it is inevitable that the true position will differ from my projection. In particular, financial market conditions can be very volatile. This could mean that the actual asset and liability values turn out to be substantially higher or lower than the projected values.

Method of projection

In order to produce the projection I have assumed that over the period to the next valuation:

- Investment performance will be in line with the assumption used in the Recovery Plan;
- Contributions will be in line with the newly agreed schedule of contributions; and
- All other items of experience, and the terms available in the insurance market, will be in line with the assumptions as set out in Appendix E.

Please note in particular that I have not made allowance for changes in financial conditions between the valuation date and the date of this report.

Projected results

The results of my projection of the funding position are as follows.

	Projection to 31 July 2019 £000s	Valuation as at 31 July 2016 000s
Total past service liabilities (L)	172,315	158,685
Total assets (A)	153,267	135,516
Ongoing surplus or deficit (A minus L)	(19,047)	(23,170)
Ongoing funding level (A as a percentage of L)	89%	85%
Winding-up funding level	60%	53%

Appendix D – Projected funding position

My projection is for an improvement in the funding position on both the ongoing and winding-up positions. These improvements are principally due to:

- Anticipated investment returns in excess of those allowed for in the funding assessment; and
- The substantial deficit reduction contributions due to be paid under the agreed Recovery Plan dated 21 December 2017.

Appendix E – Assumptions

Key financial assumptions

	Funding Assumptions at 31 July 2016	Winding-up Assumptions at 31 July 2016	Funding Assumptions at 31 July 2013
Discount rate before retirement	4.30%	0.59% below the rates derived from the Bank of England gilt spot nominal interest curve	5.75%
Discount rate after retirement	2.30%	As per pre-retirement for active and deferred members; 0.03% below the rates derived from the Bank of England gilt spot nominal interest curve for pensioners at the valuation date	5.75%
Future price inflation (RPI)	2.90%	Derived from the Bank of England gilt spot inflation curve	3.50%
Future price inflation (CPI)	2.15%	Equal to the RPI inflation assumption less 0.5%	3.00%

Appendix E – Assumptions

Pension increase assumptions

	Funding Assumptions at 31 July 2016	Winding-up Assumptions at 31 July 2016	Funding Assumptions at 31 July 2013
Final Salary Benefits			
• Pensionable Salary increases	2.90%	n/a	4.50%
• Increases to pensions in deferment	2.15%	CPI	3.00%
• Pension increases (in excess of GMP)	2.90%	RPI	3.50%
CARE Benefits			
• Revaluation whilst in service	2.15%	CPI	3.00%
• Increases to pensions in deferment	2.15%	CPI	2.50%
• Pension increases (in excess of GMP)	2.15%	CPI	3.00%

Appendix E – Assumptions

Demographic assumptions

	Funding Assumptions At 31 July 2016	Winding-up Assumptions at 31 July 2016	Funding Assumptions at 31 July 2013
Mortality			
• Base table	S2PXA	S2PXA	S1PXA
• Adjustment to base table	105% for males 100% for females.	105% for males 100% for females.	105% for males 100% for females
• Projection	CMI_2016 with long term improvement of 1.25% p.a.	CMI_2014 with long term improvement of 1.5% p.a. for males and 1.25% p.a. for females.	CMI_2013 with long term improvements of 1.25 % p.a.
Commutation	10% of pension commuted	No allowance	10% of pension commuted
Retirement from active service	Employees who joined after 31 July 1994 are assumed to retire at age 65. Employees in Pensionable Service on 31 July 1994 are assumed to retire at age 62		
Retirement from deferred status	Deferred pensioners with Pensionable Service over the period 17 May 1990 to 31 July 1994 are assumed to retire at age 60 with unreduced benefits (with the exception of males, whose benefits pre 17 May 1990 will be reduced for early payment). Deferred pensioners whose Pensionable Service ended before 17 May 1990 are assumed to retire at age 60 (females) or age 65 (males)		

For more details of the assumptions please refer to the Trustees' Statement of Funding Principles dated 21 December 2017.

Appendix F – Risks and Sensitivity

Funding risks

There are a number of funding risks which might ultimately affect the Trustees' ability to pay benefits to members. Foremost among these are the risks relating to:

- **Funding shortfalls** – If experience turns out to be less favourable than was assumed for the funding assessment, the funding level will be lower than anticipated. In that event additional contributions would be required from the University.
- **Sponsor covenant** – The University may become less able to continue to make contributions to the Scheme.

Key factors which could cause a funding shortfall

- **Investment performance** – investment returns below those assumed will cause a shortfall to emerge. This risk is greatest in pension schemes with a high proportion of assets invested in more volatile assets such as equities.
- **Changes in bond yields** – the discount rates used in the valuation are based on yields on government bonds. In the event that the yields on these bonds fall, the discount rates will fall also. This increases the liabilities and will worsen the funding position if the assets don't increase to compensate.
- **Life expectancies** – if members live longer than has been allowed for, then benefits will need to be paid for a longer period, worsening the funding position.
- **Weakened covenant** – if the University's covenant weakens, greater prudence will be needed in the funding assumptions and that will lead to higher technical provisions.

Risk mitigation measures

The Trustees have taken a number of actions to mitigate the risks. These include:

- Funding
  - → The assumptions used in the funding assessment have been chosen prudently, making it less likely that experience will turn out to be worse than assumed.
- Investment
  - → The Trustees have invested some of the Scheme assets in bonds. Movements in the value of these assets act to partially offset movements in the funding target when bond yields change.
  - → The Trustees have invested some of the Scheme assets in a diversified growth fund aimed at reducing the volatility of investment return on the Scheme's growth assets.

Appendix F – Risks and Sensitivity

- Monitoring
  - → Regular updates are received by the Trustees to keep abreast of any changes in the University's covenant and the funding position.
  - → The Trustees commissioned an independent assessment of the University's sponsor covenant strength

Despite these risk mitigation measures, substantial funding risk remains. In future the Trustees may wish to consider further measures to reduce risk, such as regular sponsor covenant monitoring, liability risk reduction exercises, or further diversified investment strategies to reduce the volatility of the funding level.

Funding level sensitivity

To give the Trustees an idea of the extent of some of the key risks, I set out below the sensitivity of the funding level to market movements and to the assumptions made. Please note that these calculations are approximate and intended for illustration only.

Sensitivity to assumptions – discount rate

9.00%

Proportionate change in Scheme liabilities as a result of discount rate moving down by 0.5% pa

	Lower discount rate	Discount rate	Higher discount rate
£000s	0.5% lower	4.3% before retirement 2.3% after retirement	0.5% higher
Assets	135,572	135,516	135,464
Liabilities	172,928	158,685	146,202
Surplus or (deficit)	(37,355)	(23,169)	(10,738)

Sensitivity to assumptions - future inflation

4.96%

Proportionate change in Scheme liabilities as a result of inflation rate moving up by 0.5% pa

	Lower future inflation	Assumed future inflation	Higher future inflation
£000s	0.5% lower	RPI at 2.9%p.a. and CPI at 2.15%p.a.	0.5% higher
Assets	135,516	135,516	135,557
Liabilities	154,857	158,685	166,559
Surplus or (deficit)	(19,341)	(23,169)	(31,002)

4.47%

Proportionate change in Scheme liabilities as a result of life expectancy increasing by 1 year

Sensitivity to assumptions – life expectancies

£000s	Life expectancies 1 year lower	Valuation assumptions	Life expectancies 1 year higher
Assets	135,422	135,516	135,614
Liabilities	151,588	158,685	165,787
Surplus or (deficit)	(16,166)	(23,169)	(30,173)

Appendix G – Certification of Technical Provisions

University of Aberdeen Superannuation and Life Assurance Scheme

Calculation of Technical Provisions

I certify that, in my opinion, the calculation of the Scheme's technical provisions as at 31 July 2016 is made in accordance with regulations under section 222 of the Pensions Act 2004. The calculation uses a method and assumptions determined by the Trustees of the Scheme and set out in the Statement of Funding Principles dated 21 December 2017.

Signature:		**Date:**	2 February 2018
Name:	Jonathan Seed	**Qualification:**	Fellow of the Institute and Faculty of Actuaries
Address:	Scotia House Castle Business Park Stirling FK9 4TZ	**University:**	Xafinity Consulting Limited