



# Regular Triennial Actuarial Investigation Report to the Trustee of

The University of New South Wales Professorial  
Superannuation Fund

**Valuation Date:** 31 December 2019

**Date of Report:** 27 April 2020

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## Executive Summary

Superannuation regulations and the Trust Deed of the University of New South Wales Professorial Superannuation Fund (the Fund) require that the Fund undergo a regular triennial actuarial investigation. This report has been prepared in order to comply with these provisions.

## Financial condition

A snapshot of the financial condition of the Fund as at 31 December 2019 is set out below.

	Total Fund	Comments
Vested Benefits Index	114.7%	<ul style="list-style-type: none"> <li>▪ The Fund remains in a satisfactory financial position.</li> <li>▪ The Fund's Vested Benefit Index for Defined Benefits is above the Shortfall Limit of 97.5%.</li> </ul>
Actuarial Value of Accrued Benefits Index	107.7%	<ul style="list-style-type: none"> <li>▪ The Fund remains in an adequate financial position.</li> <li>▪ The Fund had a surplus on this basis of \$2,566,586</li> </ul>

There is also a high degree of probability that the 76 pensions currently in payment will be able to be paid as required under the Fund's governing rules. This statement has been made considering the Fund's earnings and contributions from the date of the regular triennial actuarial investigation to 22 April 2020. This statement is made in accordance with Superannuation Prudential Standard (SPS) 160, SIS Regulation 9.31(1) and Professional Standard 410 issued by the Institute of Actuaries of Australia.

See Sections 4 and 5 for more information on the financial condition of the Fund.

## Significant changes since the prior regular triennial actuarial investigation

Australian and international shares have substantially depreciated in value due mostly to fears about the economic impact of the COVID-19 outbreak. The Fund has earned approximately -11.2% in the year to date and therefore the funding position of the Fund has substantially deteriorated, and we estimate the Vested Benefits Index is approximately 100.9%.

No other changes or events have occurred since the last regular triennial investigation that would have had a significant effect on this regular triennial actuarial investigation's disclosure information.

## Employer contribution recommendations

I recommend that the Employer pays contributions whilst there are pensioners in the Fund as follows:

- 0.4375 x Professorial Salary paid each quarter by 31 March, 30 June, 30 September and 31 December in each year

Please refer to Section 4 for details.

## Shortfall Limit recommendations

I have reviewed the Shortfall Limit of 97.5% and propose that the Trustee revise the Shortfall Limit to 97.0%. The reason for the change is that there was a change to the proportion of “growth oriented” assets from 57% to 62% supporting the Defined Benefit liabilities.

Please refer to Section 5 for details.

## Insurance recommendations

There is no insurance required since the only remaining members are pensioners or past normal retirement age, except for Trustee indemnity insurance. The Trustee has effected indemnity insurance to help protect the Trustee, its Directors and the Fund against certain liabilities.

Please refer to Section 6 for details.

## Investment recommendations

In my opinion, the retention of the current investment strategy is appropriate to meet the long-term liabilities of the Fund. Additionally, it is able to pay the ongoing income streams of its pension members.

For more information refer to Appendix C.

## Crediting rate recommendations

I have reviewed the crediting rate policy for the Fund and confirm that, in my view, it remains appropriate and should be maintained. For more information refer to Appendix C.

## Monitoring recommendations

I have reviewed the current practice of carrying out the actuarial investigation on an annual basis and confirm that, in my view, it remains appropriate given the Australian Prudential Regulation Authority's (APRA's) requirements for Funds that pay pensions.

## Actuarial assumptions

There have been changes to the actuarial assumptions since the previous regular triennial actuarial investigation. For more information refer to Section 3.

## Material risks

I have reviewed the material risks of the Fund and confirm that, in my view, the main risk that the Trustee needs to be aware of is longevity risk.

Note that the Fund has 76 pensioners at 31 December 2019 and 8 of these have a reversionary pension with a living spouse. In addition, there are 2 deferred pensioners. There is longevity risk that the members will live longer than standard (life table) mortality and the assets will not be adequate to pay pensions. The Trustee has an agreement with the Employer to pay additional contributions as required by the Actuary to ensure that pensioners will be able to be paid as well as administration and actuarial expenses.

Please refer to Section 8 for details.


## Next actuarial investigation

The next regular triennial actuarial investigation of the Fund should be carried out with an effective date of 31 December 2022. A regular annual actuarial investigation will be carried out at each 31 December when a triennial investigation is not performed as the Fund pays pension benefits.

An interim actuarial investigation may need to be carried out at an earlier date if there is a breach of the Shortfall Limit or there is an adverse material change prior to that date as advised by the Trustee or Employer.

## Disclaimer

The calculations provided in this report are based on a number of assumptions. The assumptions used are best estimates only and may not be borne out in practice. It is therefore important to review the calculation in the light of actual experience and obtain regular updates.



Saffron Sweeney  
Fellow of the Institute of Actuaries of Australia  
27 April 2020

## Section 1 – Introduction

### Purpose of the Regular Triennial Actuarial Investigation

The reasons for this regular triennial actuarial investigation are:

- to satisfy the requirements of Superannuation Prudential Standard (SPS) 160 which requires a regular actuarial investigation to be carried out once every three years;
- to review the Fund's financial position as at 31 December 2019 (the Effective Date);
- to examine the Fund's immediate solvency and funding indices; and
- to recommend appropriate Employer contributions so that the Fund remains in a satisfactory financial position.

### Name of Actuary

This regular triennial actuarial investigation was carried out as at 31 December 2019 by Saffron Sweeney, of Aon Hewitt Limited, Fellow of the Institute of Actuaries of Australia. The previous regular triennial actuarial investigation was completed by David O'Keefe, of ALEA Actuarial Consulting Pty Limited, Fellow of the Institute of Actuaries of Australia, as at 31 December 2016. The results are shown in the report dated 6 April 2017. A subsequent annual actuarial investigation was carried out as at 31 December 2017 by David O'Keefe of ALEA Actuarial Consulting Pty Limited with the results set out in a report dated 15 March 2018. The annual actuarial investigation as at 31 December 2018 was carried out by Saffron Sweeney, of Aon Hewitt Limited, with the results set out in a report dated 24 June 2019.

### Compliance with the standards of the Institute of Actuaries of Australia

This report satisfies the requirements of the Professional Standards (including Professional Standards 400, 402, 404 and 410) published by the Institute of Actuaries of Australia and Superannuation Prudential Standard (SPS) 160.

### Limitations in preparing the Report

There have been no restrictions or limitations placed on me in providing the recommendations in this report.

## Previous investigation results

The results of the previous investigations were as follows:

	<b>Regular Triennial Actuarial Investigation as at 31 December 2016</b>	<b>Regular Annual Actuarial Investigation as at 31 December 2017</b>	<b>Regular Annual Actuarial Investigation as at 31 December 2018</b>
A surplus/(deficit) of Assets over the Actuarial Value of Accrued Benefits	7,900,000	8,123,000	(1,782,914)*
An excess of Assets over the Vested Benefits	7,900,000	8,123,000	524,289
Summary of the recommended Employer contribution for DB members	Nil contribution required from 1 January 2017 to 31 December 2017.	Nil contribution required from 1 January 2018 to 31 December 2018.	<ul style="list-style-type: none"> <li>▪ 0.875 x Professorial Salary paid by 30 September 2019 and 31 December 2019; and</li> <li>▪ 0.4375 x Professorial Salary paid by 31 March, 30 June, 30 September and 31 December in each year after 2019.</li> </ul>

\* The Actuarial Value of Accrued Benefits includes an allowance for the Present Value of future Fund Expenses.

## Section 2 – The Fund’s Experience

This section considers the assumptions used in the previous regular triennial actuarial investigation as at 31 December 2016 and any subsequent assumption changes as at 31 December 2018 and the experience of the Fund relative to these assumptions.

The main factors affecting the Fund’s financial position during the period since the previous triennial actuarial investigation as at 31 December 2016 were as follows:

	<b>Assumptions at the previous triennial investigation or subsequent annual investigation</b>	<b>Fund Experience</b>	<b>Impact on the financial position of the Fund (when considered in isolation)</b>
Investment Returns <sup>1</sup>	<ul style="list-style-type: none"> <li>▪ 6.5% pa as at 31 December 2016 and 31 December 2017; and</li> <li>▪ 5.7% pa as at 31 December 2018</li> </ul>	<ul style="list-style-type: none"> <li>▪ 8.5% pa</li>   <li>▪ Above the equivalent average return of funds with a similar investment strategy which was 8.3% pa<sup>2</sup></li> </ul>	<p>Favourable effect: The Defined Benefit assets increased at a higher rate than assumed.</p> <p>The Fund earned higher returns than other funds with a similar investment mix.</p>
Employer Contribution	<ul style="list-style-type: none"> <li>▪ Nil for 2017 and 2018; and</li> <li>▪ 1.75 x Professorial Salary for 2019</li> </ul>	<ul style="list-style-type: none"> <li>▪ Nil for 2017 and 2018; and</li> <li>▪ 1.75 x Professorial Salary for 2019</li> </ul>	<p>Overall an unfavourable Effect: The Defined Benefit assets increased at a lower amount than the long-term cost of providing the defined benefits including allowance for Fund expenses. However, this was in accordance with actuarial recommendations.</p>
Pension Increases	<ul style="list-style-type: none"> <li>▪ 3.0% pa</li> </ul>	<ul style="list-style-type: none"> <li>▪ 2.8% pa</li> </ul>	<p>Favourable effect: The Defined Benefit pension liabilities increased at a lower rate than assumed.</p>
Expenses	<ul style="list-style-type: none"> <li>▪ 3.5 x Professorial Salary as at 31 December 2016;</li> <li>▪ 2.5 x Professorial Salary as at 31 December 2017; and</li> <li>▪ 1.75 x Professorial salary as at 31 December 2018</li> </ul>	<ul style="list-style-type: none"> <li>▪ Approximately 1.5 x Professorial Salary</li> </ul>	<p>Favourable effect: The Defined Benefit assets, on average, have paid less expenses than assumed.</p>

<sup>1</sup>net of investment expenses

<sup>2</sup>based on the SuperRatings Fund Crediting Rate survey issued in January 2020



The other factors affecting the Fund's financial position during the period since the previous regular triennial actuarial investigation include:

- Membership movements:
  - Exits: 19 pensioners passed away during the period. This had a favourable impact on the financial position of the Fund.
  - New Pensioners: 3 pensioners who died had a reversionary pension, so widow pensions were started. This has had an unfavourable impact on the financial position of the Fund.
  - Pensioners: The balance of the pensioners have survived longer than expected and this has had an unfavourable financial impact on the Fund.
- Inclusion of present value of expected future expenses:
  - The Actuary changed the method of determining the Present Value of Accrued Benefits to include an allowance (on a present value basis) for future expected expenses in respect of pensioners, which is in line with the requirements of the Institute of Actuaries of Australia Professional Standard 400 (PS400) section 5.10.5(e). This had an unfavourable financial impact on the Present Value of Accrued Benefits but had no impact on Vested Benefits.

The overall experience of the Fund during the regular triennial actuarial investigation period has had a negative effect on its financial position.

## Section 3 – Assumptions

As part of this regular triennial actuarial investigation, I have analysed the method and assumptions used in the previous regular triennial actuarial investigation as at 31 December 2016, and the regular annual actuarial investigations as at 31 December 2017 and 31 December 2018. Where appropriate I have maintained these methods and assumptions, however some have changed in light of the experience discussed in Section 2 of this report and after consideration of changes in market expectations. The actuarial method used is described in Appendix D.

### Interest/Pension Differential

#### Pension Members

The most significant financial assumptions used for Pension members are the rate of future investment returns and the rate of future pension increases. These rates must also be considered together because of their economic interdependence in the medium to long-term.

For this investigation I have used a Pension Interest/Increase Differential assumption as shown in the table below which is less conservative than that used at the annual actuarial investigation as at 31 December 2018 and the overall impact of these assumptions, in isolation to all others, is that the Actuarial Value of Accrued Benefits has decreased since the annual actuarial investigation as at 31 December 2018 but has increased since the previous triennial actuarial investigation as at 31 December 2016.

	Net investment return (pa)	Pension Increase rate (pa)	Differential (pa)
<b>Assumptions as at 31 December 2016 and 31 December 2017</b>	6.50%	3.00%	3.50%
<b>Assumptions as at 31 December 2018</b>	5.70%	3.00%	2.70%
<b>Assumptions as at 31 December 2019</b>	5.90%	3.00%	2.90%

These assumptions have taken into account the long-term outlook of economic conditions, in particular:

- The investment return assumption was derived using long term assumptions for each asset class as determined by Aon's global investment team, multiplied by the strategic asset allocation of the assets and allowing for correlations of investment returns between asset classes;
- We expect that inflation will remain under control at around the RBA target of 2% pa to 3% pa;
- The long term outlook for investment returns being somewhat lower than those earned in the last five years; and
- The pension increase rate assumption was chosen after considering the inflation outlook as well as the Professorial Salary increases for the 3 years ending 31 December 2019.

### Demographic assumptions

The demographic assumptions have been selected considering the Fund's experience, the Australian Life Tables and the Australian Government Actuary's views on mortality improvements. We have used Australian Life Tables 2010-2012 with 25 years mortality improvement factors and they remain unchanged from the rates used at the last Regular Annual Investigation as at 31 December 2018. However, this is different to that adopted for the triennial actuarial investigation as at 31 December 2016 and annual actuarial investigation as at 31 December 2017 which were based on Australian Bureau of Statistics 'Population Projections Australia 2002-2101'. The change in mortality decrements since the previous triennial actuarial investigation had a negative impact on the financial position of the Fund.

Sample rates for pensioner members are illustrated in the table below:

Age	Female Rate	Male Rate
65	0.62%	1.05%
70	1.03%	1.67%
75	1.81%	2.89%
80	3.32%	5.19%
85	6.64%	9.34%
90	12.81%	16.12%
95	21.88%	24.78%
100	30.33%	31.25%

## Expenses

The operating expenses of the Fund are met from the Assets of the Fund, and as such, the regular triennial actuarial investigation requires a specific allowance to be made to meet these costs. The assumed expenses for this investigation and the previous investigations are shown in the table below.

	31 December 2016	31 December 2017	31 December 2018	31 December 2019
Operating expenses	3.5 x Professorial Salary	2.5 x Professorial Salary	1.75 x Professorial Salary	1.5 x Professorial Salary

The expense assumption has decreased from the previous regular triennial actuarial investigation to reflect the expected expenses over the next three years. This reduction has had a favourable impact on the financial position of the Fund since the annual actuarial investigation as at 31 December 2018, however expenses were not allowed for in the determination of liabilities for the previous triennial actuarial investigation as at 31 December 2016 so including them has had a negative impact on the financial position of the Fund.

## Tax

There have been no changes to our assumptions regarding tax since the last regular triennial actuarial investigation. The recommended Employer contribution amount includes an allowance for 15% tax and all expenses are assumed to be tax deductible.

## Additional assumptions relating to pensions

There are a number of additional assumptions that relate to pension liabilities and assets. They include:

- The liabilities for the current pension members allow for reversions (where applicable) based on the female spouse being 3 years younger than the male spouse.
- Remarriage, separation or divorce – We have assumed that there will be no remarriage, separation or divorce for these pensioners.
- We have assumed that Deferred members will begin pension payments from 1 January 2020, however we note that as at 31 March 2020 their pensions had not yet been started.

## Overall effect of changes in assumptions

Overall the changes since the previous triennial actuarial investigation have increased the expected cost of providing benefits to the Members and this has had an unfavourable financial impact on the Fund.

## Section 4 – Actuarial Value of Accrued Benefits

I have adopted the actuarial method and assumptions described in Section 3 and in Appendix D of this report to determine the present value of past and future liabilities. The results of the regular triennial actuarial investigation are detailed in the following table.

Actuarial Value of Accrued Benefits	Total (\$)
<b>Pensioner liabilities</b>	
• Pensioner benefit payments*	31,163,012
• Future expenses	2,016,481
Total Pensioner Liabilities	33,179,493
<b>Actuarial Value of Accrued Benefits</b>	<b>33,179,493</b>
<b>Assets</b>	<b>35,745,921</b>
<b>Surplus/(Deficit)</b>	<b>2,566,428</b>

\* This is the vested benefit. Note that as at 31 December 2019 there was a surplus of assets over the vested benefits of \$4,582,909.

## Analysis of changes in financial position since the last regular triennial actuarial investigation

The following table quantifies the various impacts on the financial position of the Fund since the last regular triennial actuarial investigation as at 31 December 2016. These figures give an indication of the impact of the factors that affect the final regular triennial actuarial investigation result.

	\$(000's)
<b>Previous surplus/(deficit) on Vested Benefits basis</b>	<b>7,900</b>
Interest on surplus/(deficit) on Vested Benefits basis <sup>1</sup>	810
Investment gains/(losses) <sup>2</sup>	2,457
Expense gains/(losses) <sup>3</sup>	(537)
Change in basis gains/(losses) <sup>4</sup>	
• Assumptions relating to Pensioner Mortality	(3,847)
• Assumptions relating to Earnings	(1,206)
• Change in timing of payments in actuarial model	192
Pension indexation gains/(losses) <sup>5</sup>	591
Pensioner mortality gains/(strain) <sup>6</sup>	(2,417)
Miscellaneous	640
<b>Surplus/(deficit) as at the valuation date on Vested Benefit basis</b>	<b>4,583</b>
Inclusion of Present Value of Future Expenses <sup>7</sup>	<b>2,017</b>
<b>Surplus/(deficit) at the valuation date on Actuarial Value of Accrued Benefit basis</b>	<b>2,566</b>

<sup>1</sup> Interest on surplus over the period

<sup>2</sup> An investment gain occurs when investment earnings are higher than assumed

<sup>3</sup> An expense loss occurs when expenses are more than allowed for in the determination of the liabilities and contributions.

<sup>4</sup> A loss from a change of basis occurs when the overall set of assumptions becomes more conservative.

<sup>5</sup> A pension indexation gain occurs when pension indexation is at a lower rate than assumed.

<sup>6</sup> A pensioner mortality strain occurs when pensioners live longer than assumed.

<sup>7</sup> As noted in the previous annual investigation the actuary now includes an allowance for the present value of expected future expenses in the determination of the Present Value of Accrued Benefits.

## Use of excess reserves

The excess of assets over Actuarial Value of Accrued Benefits equates to the surplus of Assets held by the Fund. It is useful to hold a small surplus to protect the Fund from minor fluctuations in asset values and to ensure Vested Benefits are covered.

Total assets exceeded the Actuarial Value of Accrued Benefits as at 31 December 2019 by \$2,566,428. This is equivalent to 7.7% of Pensioner liabilities. Due to recent investment market volatility there is no longer a surplus on the Present Value of Accrued Benefits basis and we estimate that there is a deficit of approximately \$1,740,000 as at 22 April 2020.

As the assets are no longer able to meet the expected present value of the future expenses, Employer contributions are required to cover these. Therefore, the recommendation for the Employer to continue to pay  $0.4375 \times$  Professorial Salary per quarter whilst there are still pensioners in the Fund will remain. However, if investment returns are less than expected for the remainder of the calendar year or experience deviates from other assumptions adversely, there will need to be an increase in contributions payable. We note that Fund assets and liabilities are reported to the Australian Prudential Regulation Authority (APRA) on a quarterly basis which will enable regular review of the funding position.

## Section 5 – Immediate Solvency and Funding Indices

### Immediate tests on the adequacy of the assets

An important objective of this regular triennial actuarial investigation is the measurement of the funding of expected member benefits in respect of their service up to the valuation date.

- **Assets:** I have taken the fair value of the net assets provided by the Fund administrator, based on the University of New South Wales Professorial Superannuation Fund signed financial statements as the value of assets for Defined Benefit members for the purpose of this regular triennial actuarial investigation. The financial statements at 31 December 2019 were audited and signed on 26 March 2020. The assets are net of any amount held to meet the Operational Risk Financial Requirement (ORFR). The assets are discussed further in Appendix C.
- **Liabilities:** Appendix D contains a summary of the method used in the regular triennial actuarial investigation to determine the liabilities of the Fund.

The indices described here have been used to assess whether the Assets of the Fund are sufficient to ensure its ongoing solvency and to measure the changes in these indices since the last regular triennial actuarial investigation.

The table below shows the relevant indices calculated by dividing the level of assets by the total of the relevant benefit based on the results of this regular triennial actuarial investigation and the previous annual actuarial investigations and the previous regular triennial actuarial investigation.

	31 December 2016		31 December 2017		31 December 2018		31 December 2019		
	Amount	Index <sup>1</sup>	Amount	Index <sup>1</sup>	Amount	Index <sup>1</sup>	Amount	Index <sup>1</sup>	
	(\$)		(\$)		(\$)		(\$)		
<b>Vested Benefits</b>	31,940,000	124.7%	30,773,000	126.4%	33,590,497	124.7%	31,163,112	114.7%	A
<b>Actuarial Value of Accrued Benefits<sup>^</sup></b>	31,940,000	124.7%	30,773,000	126.4%	35,897,682	124.7%	33,179,493	107.7%	A
<b>Assets</b>	39,840,000		38,896,000		34,114,768		35,745,921		B

<sup>1</sup>Index is B/A

<sup>^</sup>The excess over the Vested Benefits amount is the liability for future pensioner expenses as at 31 December 2018 and 31 December 2019.

### Other Benefits

#### Superannuation Guarantee Minimum Benefits

The Fund does not have any Minimum Requisite Benefit entitlements as at 31 December 2019 as all members are receiving pension payments or have withdrawn their Minimum Requisite Benefits. Accordingly, we understand the Fund is no longer used by the Employer to satisfy its Superannuation Guarantee obligations and there is no current Benefit Certificate.

#### Retrenchment Benefits

There is no specific retrenchment benefit.

## Termination Benefits

In the event of termination of the Fund there are no specific benefits described under the Trust Deed. However, Clause 22 requires that members are paid by the Trustee an amount which is of equivalent value representing the interest of the member or pensioner in the Fund on winding up of the Fund for any reason. We understand that under Clause 22.2, any amount remaining in the Fund, in the event of Termination of the Fund, will be paid to the Employer.

## Vested Benefits Index

Vested Benefits are the benefits where the members have already terminated employment and are receiving Defined Benefit pensions or are entitled to deferred benefits, the value of those pensions (ie the present value of projected pension benefits or deferred benefits) are also included.

The Vested Benefits Index provides a measure of the Fund's ability to meet its minimum obligations to all members on the valuation date.

To ensure that the Fund is in a satisfactory financial position, it is essential that the Vested Benefits Index is kept above 100%. The Vested Benefits Index was at a satisfactory level at the valuation date.

## Shortfall Limit

In accordance with SPS 160, the Trustee has set a Shortfall Limit of 97.5%. This is the extent to which the Trustee considers the Fund can be underfunded (on the basis that assets are insufficient to meet all members' Vested Benefits) but retain a reasonable expectation of returning to a funded position within a year, solely due to a correction to temporary negative market fluctuations in the value of the Fund assets.

This Shortfall Limit is to be compared to the Vested Benefits Index ie the ratio of assets and Vested Benefit liabilities.

The Vested Benefit Index at 31 December 2019 was 114.7%. Therefore, the Fund has not fallen below the Shortfall Limit at the valuation date.

I have reviewed the Shortfall Limit of 97.5% and propose that the Trustee change the Shortfall Limit to 97.0%. The reason for the change is that there was an increase from 57% to 62% in the proportion of "growth oriented" assets supporting the Pensioner liabilities. The shortfall limit is determined as follows:

$100\% - 5\% \times \text{proportion of growth-oriented assets supporting the Pensioner liabilities}$

As the Shortfall Limit is determined with reference to the proportion of growth-oriented assets, the Shortfall Limit will need to be recalculated if the Trustee changes the investment strategy of the assets.

## Actuarial Value of Accrued Benefits Index

The valuation results shown in Section 4 of this report disclose the Actuarial Value of Accrued Benefits, also known as the Past Service Liability. This is the same as the figure calculated for AASB1056 purposes which was calculated in accordance with the Institute of Actuaries of Australia Practice Guideline 499.06. This amount constitutes the “value of the liabilities in respect of accrued benefits” as defined in Division 9.5 of the Superannuation Industry (Supervision) (SIS) Regulations and has been calculated in accordance with Professional Standard 402 issued by the Institute of Actuaries of Australia.

The Actuarial Value of Accrued Benefits Index provides a measure of the Fund’s ability to meet its benefit obligations to all members of the Fund based on membership to the valuation date. Where the members have already terminated employment and are receiving Defined Benefit pensions or are entitled to deferred benefits, the value of those pensions (ie the present value of projected pension benefits) or deferred benefits is included. This also allows for the value of future Fund expenses.

The minimum desirable range for this index is 100%-105% which allows for possible variations in asset values. The index was at an adequate level at the valuation date.

## Transferring Pensioner liability to a third party

We have not provided the value of pension benefits in the above tables on an equivalent market value basis (that is, the amount determined as being required to be paid to a third party to take on the liability) due to the difficulty of getting annuity quotations and there being no immediate requirement by the Employer or Trustee to consider this as an option.

If the Trustee decides to transfer the pension liability to a third party it is unlikely that the assets will be sufficient due to risk, expense and profit margins of the third party.

The Employer needs to be aware that buying out pension liabilities in the event of winding up the Fund would be more expensive in the open market due to the limited provider options that are currently available. As an indication, an annuity for a male age 80 could cost around 49% more than the actuarial liability value (based on annuity rates available on Challenger’s website).

Also note that there are limited annuity options available in the Australian market and exact matching of the pension liabilities may not be possible. If the Trustee or Employer would like to explore this option further, we could attempt to obtain quotations from annuity providers.



## Section 6 – Adequacy of Insurance Arrangements

Since the only remaining members of the Fund are pensioners or other members past their retirement age, insurance is not required for the Fund except for Trustee indemnity insurance.

### Indemnity insurance

The Trust Deed provides an indemnity to the Trustee against claims which may be made against it. This is secured against the Assets of the Fund.

The Trustee has taken out trustee indemnity insurance to help protect the Trustee, its Directors and the Fund against certain liabilities, that is consistent with the size and nature of its business and industry standards. As with any insurance, the indemnity is subject to the terms and conditions of the relevant insurance policy.

### Material issues arising from insurance

There are no material issues arising from insurance, although the Trustee should periodically review that all insurance cover remains sufficient.

## Section 7 – Sensitivity Analysis and Projections

### Assumption variation

The values of the benefit liabilities shown in this report depend on the assumptions used to calculate them. The main assumptions relate to pension increases and the long-term investment return (net of tax and investment expenses) and pensioner mortality. Examples below provide an indication of the effect on the Actuarial Value of Accrued Benefits of changing these assumptions only. The actual investment earning rate and pension increase rate may not be constantly above or below the rates assumed in carrying out the projection of benefits and the actual results may not fall within the ranges shown in the table below:

<b>Assumptions (pension inflation /long-term investment return)</b>	<b>Actuarial Value of Accrued Benefits as at 31 December 2019</b>
	<b>(\$)</b>
Last valuation (3.0% pa/5.7% pa)*	33,583,380
This valuation (3.0% pa/5.9% pa)	33,179,493
Pension inflation rate plus 1% pa (4.0% pa/5.9% pa)	35,193,394
Pension inflation rate minus 1% pa (2.0% pa/5.9% pa)	31,350,532
Investment return plus 1% pa (3.0% pa/6.9% pa)	31,290,907
Investment return minus 1% pa (3.0% pa/4.9% pa)	35,295,542
Mortality Rated up by 2 years	30,143,253
Mortality Rated down by 2 years	36,397,791

\* This is based on last (2018) valuation's financial assumptions only, ie the decrement assumptions are the same as those used for this valuation.

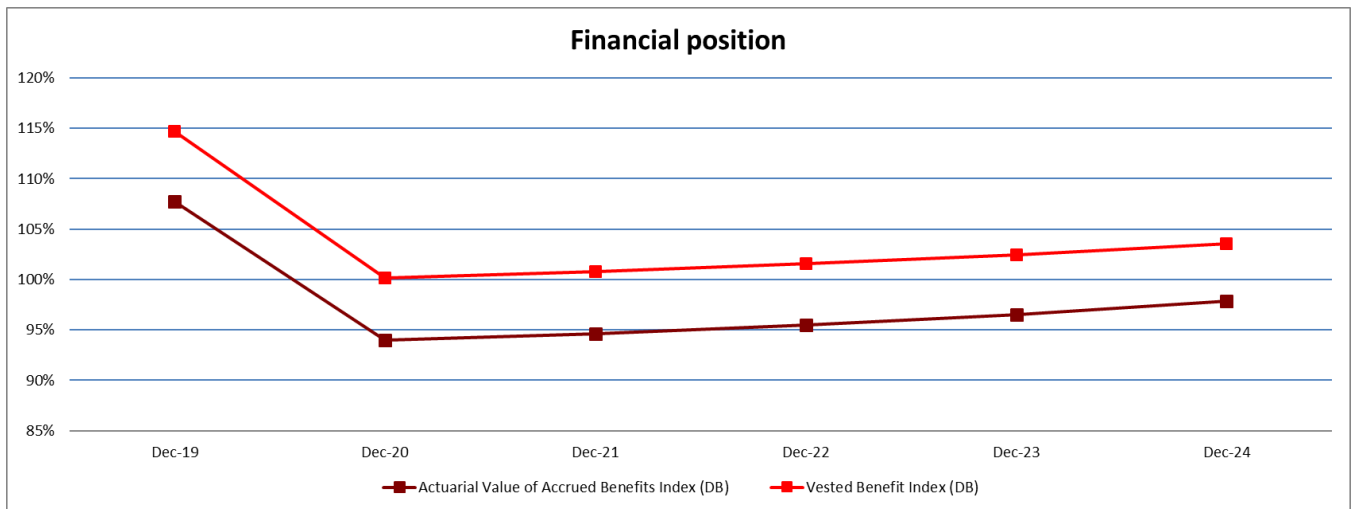
Based on the above results, it is clear that the financial position of the Fund will vary depending on the actual experience of the Fund and particularly in relation to pensioner mortality rates, pension increases and long-term investment returns.

### Post valuation events

The Fund has earned an average investment return of -11.2% from the date of the valuation to 22 April 2020. This is significantly lower than the rate assumed for the valuation and has resulted in a deterioration in the financial position of the Fund. I estimate that coverage of Vested Benefits has decreased from 114.7% at the valuation date to approximately 100.9% as at 22 April 2020. This has been taken into account in the recommended Employer contributions.

### Projection of future liabilities

The graph overleaf shows the projected value of Vested Benefits and Actuarial Value of Accrued Benefits funding indices over the next 5 years. These projections have been based on pensioner liabilities, include the present value of expected future expenses in the Actuarial Value of Accrued Benefits and assume that the Employer will pay contributions in accordance with the contribution recommendation (refer to Section 9 of this report) and are based on the assumptions used to calculate past service liabilities at each of the future dates. These projections also allow for the post valuation events described above.



Assuming the Employer contributions are not less than the amounts which I have recommended, I expect that on the assumptions, methods and asset values adopted in the valuation, that the Assets will remain sufficient to cover the vested benefits and expenses as they fall due during the period up to 31 December 2024.

## Section 8 – Material Risks

### Financial risk

As noted in the results of the Sensitivity Analysis (Section 7), the items that have the greatest impact on the financial position of the Fund are the differences between the assumed and the actual pensioner mortality rates (discussed further below), the assumed and the actual pension increase rate and the assumed and actual long-term investment return. Should pensions increase at a higher rate than assumed, the liabilities will be higher than expected and the assets may then be insufficient to cover members' benefits. This may then require the Employer to make larger contributions to the Fund. Similarly, if there are lower than assumed investment returns, the assets of the Fund would be reduced compared to the assets expected and may then be insufficient to cover members' benefits. This may then require larger contributions to be made by the Employer. If the Employer is willing and able to make these larger contributions and accept the volatility involved, a deterioration in the financial position can be managed.

Another strategy to mitigate these risks is to change the asset allocation on the assets to a less risky strategy (note: that this would generally increase the long-term cost to the Employer but provide lower contribution volatility).

### Employer financial viability

The future of the Fund relies on the Employer remaining a viable entity and being willing and able to pay contributions as and when needed. The Trustee should discuss the valuation report with the Employer and ensure the Employer understands the recommendations before agreeing to the contribution amounts.

### Fund specific risks

#### Pensioners

Currently there are 76 pensioners and their average age as at 31 December 2019 is 82.6 years.

If a pensioner outlives the assumed life expectancy, this may cause the assets of the Fund to be insufficient to cover pensioners' benefits. This would then require additional contributions to be made by the Employer. The agreement by the Employer to pay contributions, mitigates this risk to an extent.

Please note that the valuation results are based on best estimate assumptions and therefore represent a "business as usual" approach. The Employer also needs to be aware that buying out these pension liabilities in the event of winding up the Fund would be more expensive in the open market due to the limited provider options that are currently available and the risk, expense and profit margins a provider requires. As an indication, an annuity for a male age 80 could cost around 49% more than the current actuarial liability value (based on annuity rates available on Challenger's website).

## Investment policy

As mentioned above, market risk is a key driver in the financial position of the Fund. However, there are other investment risks to consider. These include:

- Liquidity Risk - the risk that illiquid assets or large cashflows from the Fund cause the payment of benefits to be delayed or assets to be sold at reduced values to meet liability obligations.

The Trustee mitigates this risk by:

- Investing in unit trusts offering daily liquidity, avoiding direct, illiquid investments;
- Ensuring that the majority of invested assets, are realisable at short notice (typically one week or less), under normal market conditions; and
- Maintaining a cash float of at least 3% of assets.

- Concentration Risk – the risk that investments are concentrated in one particular asset class, country or manager, the poor performance of which could cause a material effect on the investment return.

The Trustee mitigates this risk by using external fund managers to provide access to a number of different asset classes, styles of investing and geographical areas.

The Trustee should periodically monitor the risks summarised in this section and seek advice or take action as may be deemed necessary.

## Section 9 – Recommendations and Actuary’s Summary Statement for the Purposes of SPS 160

### Recommendations

#### Future contribution recommendations

I recommend that the Employer pays contributions to the Fund as set out below to at least cover Fund expenses and this will be required whilst there are pensioners in the Fund:

- 0.4375 x Professorial Salary paid each quarter by 31 March, 30 June, 30 September and 31 December in each year.

The recommended contributions will need to be reviewed prior to the next regular triennial actuarial investigation due with an effective date of 31 December 2022 if there is a breach of the Shortfall Limit or an adverse material change in circumstances occurs prior to that date as advised by the Trustee or Employer.

#### Shortfall Limit recommendations

I have reviewed the Shortfall Limit of 97.5% (see Section 5) and propose that the Trustee change the Shortfall Limit to 97.0%.

#### Insurance recommendations

There is no insurance required since the only remaining members are pensioners or past normal retirement age, except for Trustee indemnity insurance. The Trustee has effected indemnity insurance to help protect the Trustee, its Directors and the Fund against certain liabilities.

Please refer to Section 6 for details.

#### Investment recommendations

In my opinion the investment strategy is appropriate to meet the term of the liabilities of the Fund. Additionally, it is able to pay the ongoing income streams of the Fund’s pension members.

The Employer may prefer to have the assets invested in a less growth orientated investment in order to minimise the fluctuations of assets in volatile investment markets. This may increase the long-term costs of running the Fund but will reduce fluctuations in the contributions in the short-term. If required, we can consider the financial impact of such a change.

The levels of liquidity available to the Fund are adequate to meet any of its short-term liquidity requirements, particularly pensions via contributions from the Employer and/or sale of the Fund’s Assets.

#### Crediting rate recommendations

I have reviewed the crediting rate policy for the Fund and confirm that, in my view, it remains appropriate and should be maintained. For more information refer to Appendix C.

#### Monitoring recommendations

I have reviewed the current practice of carrying out the actuarial investigation on an annual basis and confirm that, in my view, it remains appropriate given the Australian Prudential Regulation Authority’s (APRA’s) requirements for Funds that pay pensions.

## Disclaimer

The calculations provided in this report are based on a number of assumptions. The assumptions used are best estimates only and may not be borne out in practice. It is therefore important to review the calculation in the light of actual experience and obtain regular updates.

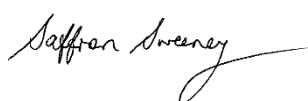
## Actuary's Statement for the Purposes of SPS 160

I have conducted a regular triennial actuarial investigation of the University of New South Wales Professorial Superannuation Fund (the Fund) as at 31 December 2019 covering the three-year period to that date. In my opinion:

- 1) As at 31 December 2019, the fair value of the net Assets of the Fund for pensioner members, based on audited accounts for the Fund, was \$35,745,921 and this is the value of assets used to determine the Employer contributions with an allowance for investment returns for the period from 31 December 2019 to 22 April 2020.
- 2) The value of the Assets of the Fund was adequate to meet the value of liabilities of the Fund in respect of the Actuarial Value of Accrued Benefits of \$33,179,493 as at 31 December 2019. The Actuarial Value of Accrued Benefits of Defined Benefit members as at 31 December 2019 for the purposes of Australian Accounting Standard AASB1056 was \$33,179,493 which was calculated in accordance with Practice Guideline 499.06. The relevant value of Defined Benefit related assets for AASB 1056 was \$35,745,921.
- 3) The investigation disclosed the Fund was in a satisfactory financial position as at 31 December 2019. The Fund's financial condition has not fallen below the Shortfall Limit set by the Trustee at the valuation date.
- 4) The Fund has a liability in respect of current pensioners. The present value of their future payments has been included in all benefit calculations. The assets including future contributions are sufficient to provide for the risk of longevity. Should the Fund be in an unsatisfactory financial position, the benefits of pension members will continue to be paid and the Employer will be required to increase contributions in order that the security of members' benefits will not be jeopardised. Any other member who has postponed retirement or deferred receipt of a benefit remains a member under the Rules and any relevant liability is included. Note that the assets supporting the pension liabilities are not segregated from the rest of the Fund Assets.

There is also a high degree of probability that the 76 pensions currently in payment will be able to be paid as required under the Fund's governing rules. This statement has been made considering the Fund's earnings and contributions from the date of the regular triennial actuarial investigation to 22 April 2020. This statement is made in accordance with Superannuation Prudential Standard (SPS) 160, SIS Regulation 9.31(1) and Professional Standard 410 issued by the Institute of Actuaries of Australia.

- 5) I have recommended contributions to ensure that the assets will continue to be adequate to meet the liabilities of the Fund as they fall due and I expect the Fund to remain in a satisfactory financial position as defined in the SIS Regulations.



Saffron Sweeney  
Fellow of the Institute of Actuaries of Australia  
Aon Hewitt Limited  
27 April 2020

## Appendix A – Summary of Fund Rules

### Fund structure

The Fund is a Defined Benefit fund and is constituted by a Trust Deed originally dated 1 July 1995. Since the last regular triennial actuarial investigation of the Fund as at 31 December 2016 the Deed has not been amended.

The Fund is a complying fund for the purposes of the Superannuation Industry (Supervision) Act 1993. This results in the Fund being taxed at the favourable rate of 15% on income net of allowable deductions.

### Annual Review Date

31 December

### Definitions

#### Normal Retirement Date (NRA)

Age 60 to 65 at Member's nomination on joining the Fund or at least 3 months' prior to retirement (in writing to the Trustee).

#### Service

Number of years and complete months whilst in the service of the University of New South Wales whilst holding the appointment as a professor (unpaid leave of absence not counted)

#### Member's Additional Contribution Account

This is the accumulation with earnings of any contributions made by the Member in accordance with Schedule 1 (Contribution and Benefit Rules) and 2 (Contributory Pension Rules: covering Sub-Categories B1, B2 and B3) of the Trust Deed and any contributions by a Member who is contributing to the Surviving Spouses' Pension Contribution Account.

#### Additional Contribution Pension (ACP)

For Sub-Category B1 Members electing to receive additional pension, they contribute at the rate of 2.75% of Professorial Salary for ages between 45 and 50, increasing by 0.25% for every age above 50 to a maximum of 5% from age 59 onwards.

Their additional Benefit on or after NRA with more than five years' service is equal to an additional pension of 5% of Professorial Salary.

For Sub-Category B2 Members electing to receive additional pension, they contribute at the rate of 3% of Professorial Salary.

Their additional Benefit on or after NRA with more than five years' service is equal to an additional pension of 3% of Professorial Salary.

For Sub-Category B3 Members electing to receive additional pension, they contribute at the rate of 2.75% of Professorial Salary.



Their additional Benefit on or after NRA with more than five years' service is equal to an additional pension of 5% of Professorial Salary.

If contributions are made as per the above categories, in the event of the retirement or withdrawal of the Member prior to NRA or with less than five years' service, the Member will not be entitled to any additional pension and the benefit will be equal to the return of the Member's contributions with earnings. However, the Member in these circumstances may elect to contribute an additional amount equivalent to the contributions that would have been made had they remained in the Fund until their NRA and they will be entitled to the above benefit. On the death of the Member prior to NRA the benefit payable will be equal to the return of the Member's contributions with earnings.

## Surviving Spouses' Pension Contribution Account

Contributions may be made by the Member, at various rates depending on the Member's age and the level of spouse pension selected, to specify the pension a Spouse is to receive after the Member pensioner's death, expressed as a whole percentage from a minimum of 1% up to a maximum of 20% of the Professorial Salary.

The Member's rate of contribution is specified in Schedule 4 (Surviving Spouses Pension Rules) of the Trust Deed. The benefit payable on the withdrawal of the Member prior to NRA, or on the death of the spouse before the Member, will be equal to the return of the Member's contributions with earnings.

## Contributions

### Employer

Amount required to be paid by the Actuary, if any.

## Benefits

### Type of Pension

A pension is payable if the Member has paid the required contributions, otherwise a lump sum benefit is payable. All remaining members have paid the required contributions.

The pensions are defined benefit pensions payable for life. The tax-sourced pension is determined as a percentage of Professorial Salary per annum, where the percentage is:

20% +

minimum (1% x maximum (Service – 5, 0), 25%) +

5% (for Sub-Category B1 or B3 members who were between ages 55 and 60 with at least 10 years of Service and the Member had paid the amount required to meet contributions required to age 60)) +

3% (for Sub-Category B2 members who were between ages 55 and 60 with at least 10 years of Service and the Member had paid the amount required to meet contributions required to age 60))

### Guarantee Period/Benefit on Death

Where a member was entitled to a pension the pension is guaranteed to be paid for a period of 5 years post the death of the Pensioner if the Member dies within 5 years of retirement from Service.

There is a guarantee on pension payments if the member had elected to take their lump sum benefit as a pension they had an option\*, in the event of the death of the member and the member's spouse, if applicable. A commutation factor applies based on the remaining period of term certain in whole years (see table below). After the guarantee period's worth of pension payments have been made and the member and spouse, if applicable, have deceased, the pension shall cease.

Remaining period of term certain in whole years	Commutation Factor
1	0.985
2	1.942
3	2.871
4	3.772
5	4.648
6	5.498
7	6.323
8	7.124
9	7.902
10	8.657

\* members had the option of no guarantee, five year guarantee and ten year guarantee where the lump sum amount they were entitled to was converted to a pension.

### Pension Payments

Pensions are payable in equal fortnightly instalments in arrears.

### Pension Increases

The increase in Professorial Salary and pension indexation are based on the Public Sector Average Weekly Ordinary Time Earnings (AWOTE) (at the previous November) at 31 January each year or the increase specified in the Enterprise Bargaining Agreement (EBA) if it is higher. A summary of increases that have been made to the Professorial Salary on which the pensions are based over the inter-valuation period are found in the table below.

Date	Professorial Salary (greater of A and B)	A) Indexed Professorial Salary	AWOTE Indexation	B) EBA Salary	EBA Indexation
<b>1/01/2016</b>	<b>180,437</b>	175,145		180,437	
31/01/2016	180,437	178,525	1.93%	180,437	
1/07/2016	183,144	178,525		183,144	1.50%
<b>1/01/2017</b>	<b>183,144</b>	178,525		183,144	
13/01/2017	185,891	178,525		185,891	1.50%
31/01/2017	185,891	184,470	3.33%	185,891	
14/07/2017	188,679	184,470		188,679	1.50%
<b>1/01/2018</b>	<b>188,679</b>	184,470		188,679	
12/01/2018	191,509	184,470		191,509	1.50%
31/01/2018	191,509	189,562	2.76%	191,509	
5/10/2018	195,339	189,562		195,339	2.00%
<b>1/01/2019</b>	<b>195,339</b>	189,562		195,339	
31/01/2019	195,665	195,665	3.22%	195,339	
1/07/2019	199,246	195,665		199,246	2.00%
<b>1/01/2020</b>	<b>199,246</b>	195,665		199,246	

## Appendix B – Membership

### Membership characteristics as at 31 December 2019

The main characteristics of the Fund's Pension membership at the valuation date are summarised in the following table. For comparison, figures for the previous valuation date (31 December 2016) are shown for comparison:

<b>Pensioners</b>	<b>31 December 2016</b>	<b>31 December 2019</b>
Number of pensioners		
• Pensioners	78	60
• Widows	13	16
• Deferred	2	2
Average age (years)		
• Pensioners	81.0	82.0
• Widows	83.0	84.6
• Deferred Pensioners	71.5	74.5
Total annual pension, including deferred (\$)	4,230,385	3,923,813

The Professorial Salary as at 1 January 2020 was \$199,246 per annum.

### Quality of data

Member data was received electronically and was in good order for the purposes of preparing this Report. Individual membership data as well as asset information was reconciled to the last regular triennial actuarial investigation data.

We have relied on the audited and signed asset information provided by the Fund administrator as at 31 December 2019.

### Administration

No significant variations were detected between the method of calculation of benefits on the administration system and our calculations. The data received was adequate and appropriate for the purposes of the regular triennial actuarial investigation. Data checking included checking pension payments and indexation.

## Appendix C – Accounts and Summary of Assets

### Accounts

The following is a summary of the Financial Accounts provided by the Fund administrator for the regular triennial actuarial investigation period 31 December 2016 to 31 December 2019. The final accounts of the University of New South Wales Professorial Superannuation Fund for 31 December 2019 have received audit clearance and were signed on 27 March 2020.

	1 January 2017 to 31 December 2017 (\$)	1 January 2018 to 31 December 2018 (\$)	1 January 2018 to 31 December 2019 (\$)	1 January 2017 To 31 December 2019 (\$)
<b>Fund Assets at start of period (A)</b>	<b>39,832,109</b>	<b>38,896,087</b>	<b>34,114,768</b>	<b>39,832,109</b>
<b>Plus</b>				
Member contributions	0	0	0	0
Employer contributions	0	0	348,681	348,681
Rollovers/transfers in	0	0	0	0
Investment income (including capital appreciation/depreciation)	3,610,603	(24,766)	5,340,559	8,926,396
Sundry income	0	0	0	0
<b>Less</b>				
Group Life premiums (net of rebates)	0	0	0	0
Benefits (net of insurance recoveries)	4,427,549	4,452,520	3,958,415	12,838,484
Transfers out to other funds	0	0	0	0
Administration and other charges	287,699	302,358	285,764	875,821
Income tax	(162,354)	310	(192,511)	(354,555)
Other taxes	0	0	0	0
Net change in ORFR	(6,269)	1,366	6,419	1,516
<b>Fund Assets at end of period</b>	<b>38,896,087</b>	<b>34,114,767</b>	<b>35,745,921</b>	<b>35,745,921</b>

The assets above back pension liabilities and therefore receive favourable tax treatment (i.e. assets investment return is tax free).

## Summary of assets

A breakdown of the Defined Benefit assets) at 31 December 2019 is as follows:

<b>By Asset Class (based on benchmark asset allocation)</b>	<b>31 December 2016 (%)</b>	<b>31 December 2019 (%)</b>
Australian Shares	34.0	35.5
International Shares	23.0	26.2
Australian Fixed Interest	39.0	35.0
Cash	4.0	3.3
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

## Crediting rate policy

The Fund credits the actual return on the investments after investment related expenses to members' accounts\* via a crediting rate mechanism. This method of crediting interest is appropriate as members receive interest on their accounts in accordance with what the Fund has earned and there are no cross-subsidisations. Investment earnings credited to members can be positive or negative.

The Fund return for the period was:

<b>Year to 30 December 2017 (pa)</b>	<b>Year to 30 December 2018 (pa)</b>	<b>Year to 30 December 2019 (pa)</b>	<b>3 Years to 30 December 2019 (% pa)</b>
9.78%	-0.78%	17.05%	8.43%

\*there are two accounts where the crediting rate is applied: Members' Additional Contribution Account and Surviving Spouses' Pension Contribution Account.

## Appendix D – Funding Method

There have been no changes to the funding method, apart from including the present value of expected future expenses in the Actuarial Value of Accrued Benefits, and the method of attributing benefits to past membership since the last regular triennial actuarial investigation as at 31 December 2016.

### Funding method

The funding method is the manner in which the Employer's recommended contributions are determined. In this regular annual actuarial investigation, the value is determined as the present value of expected future cashflows (which are expected future pension payments and expected future expenses).

### Summary of method of attributing benefits to past membership

All benefits and expenses relate to past membership.

## Contact Information

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