Transnet Second Defined Benefit Fund

Actuarial valuation as at 31 March 2017

Prepared by Alexander Forbes Financial Services

August 2017

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EXECUTIVE SUMMARY

Present value of pensioner liabilities

1. The present value of the liabilities in respect of pensioners as at 31 March 2017 was as follows:

	31 March 2016 (R'million)	31 March 2017 (R'million)
Pensioners	5 344	4 947
Widow(er)	6 017	5 889
Children	3	21
Total liability	**11 364**	**10 857**

Summary of results

2. Comparing the value of the assets with the past service liabilities produced the following results:

	31 March 2016 (R'million)	31 March 2017 (R'million)
Total net assets	15 630	15 241
Total liabilities	11 364	10 857
Solvency reserve	459	450
Surplus/(Deficit)	**3 807**	**3 934**
Funding level	**132.2%**	**134.8%**

Conclusion

3. I confirm that, based on the information available, the fund was in a sound financial condition as at the valuation date, i.e. the assets of the Transnet Second Defined Benefit Fund exceed the fund's liabilities and recommended contingency reserves as at the valuation date.

4. I am satisfied that the assets of the fund adequately matched the liabilities.

1. INTRODUCTION

I am pleased to present to the trustees of the Transnet Second Defined Benefit Fund (*"the fund"*) this actuarial valuation as at 31 March 2017 (*"the valuation date"*). This report sets out the results of the actuarial valuation of the fund as at 31 March 2017 and includes an analysis of the financial progress of the fund since 31 March 2016 *("the previous valuation date")*. The period between the previous valuation date and the current valuation date is referred to hereinafter as the valuation period.

Registration and operation

1.1 The fund now known as the Transnet Second Defined Benefit Fund was established on 1 November 2000 and all pensioners of the Transnet Pension Fund transferred to the fund on 1 November 2000. The fund was in a financially sound condition at its inception.

Objectives

1.2 This actuarial valuation has been carried out as at 31 March 2017 with the following objectives:

- to assess the **financial soundness** of the fund, by comparing the value of liabilities accrued to the valuation date with the value of the assets held as at that date;
- to investigate and report on **actual experience of the fund** since the previous valuation;
- to review the **assumptions used** in light of actual experience;
- to assess the necessity for, and quantum of, any **contingency reserves**;
- to assess the **suitability of the assets** in relation to the liabilities of the fund; and
- to meet **statutory requirements**.

Valuation data

1.3 In compiling this report, I have relied upon the accuracy and completeness of information made available to me by the administrators, Momentum Retirement Administrators, and external parties. Except where expressly stated in the report, I have not independently verified the accuracy of the facts or the basis of the information supplied to me.

1.4 The results of the valuation depend on the accuracy of:

- the membership data;
- the information on the assets, as supplied by the relevant sources; and
- the audited financial statements for the valuation period.

1.5 Reasonability checks have been performed on the above and I am satisfied with the general accuracy and completeness of the data provided and with its suitability for purposes of this actuarial valuation. Further information regarding the reasonability checks performed is set out in appendix 2.

Capacity, brief and professional guidance

1.6 This report has been prepared by Alexander Forbes Financial Services (Pty) Ltd *("Alexander Forbes")* solely for the benefit of trustees of the Transnet Second Defined Benefit Fund and the Minister of Public Enterprises and the Minister of Finance, and is prepared in accordance with the instructions given by the trustees of the fund. The trustees are charged by the Transnet Pension Fund Act 62 of 1990 ('the Act") to investigate the financial condition of the fund and report thereon to the Minister of Public Enterprises and the Minister of Finance.

1.7 In terms of rule 18(2)(b) of the fund, the fund shall be valued by the Actuary at intervals not exceeding three years, to determine whether the fund is in a position to pay the benefits provided for in the rules. The current practice is to perform annual actuarial valuations of the fund. The trustees appointed Alexander Forbes to perform this valuation.

1.8 Throughout this report any values that have been determined are, except where otherwise stated, in accordance with our view of the most probable future experience. Our specific assumptions and other reliances and limitations are documented in the following sections and supporting appendices. These sections and appendices are an integral part of this report.

1.9 This report complies with the relevant Guidance Notes of the UK Actuarial Profession and the Professional Guidance Notes of the Actuarial Society of South Africa.

1.10 Alexander Forbes does not accept any liability to any persons, other than the trustees, in connection with this report or its related enquiries. I accept no liability in respect of any matter outside the scope and limitations of this report and purpose for which it is prepared.

1.11 This report may not be disclosed and / or relied upon in whole or in part to / by any person other than the trustees or quoted in any other context without prior written consent. Any person, other than the trustees to whom this report is addressed, who receives a draft or copy of this report (or any part of it) or discusses it (or any part of it) or any related matter with me or any third party, does so on the basis that they acknowledge the source of this report and accept that they may not rely on it for any purpose whatsoever and that I owe a duty of care only to the trustees. Any portion of this report, if reproduced or transmitted, must include a reference to the full report and to this clause.

1.12 This report has been prepared as at 31 March 2017 and covers the valuation period given above. Unless specifically stated to the contrary, it does not take into account any events subsequent to the valuation date.

2. HISTORY OF THE FUND

2.1 A summary of the history of the fund's funding level is shown in the following table:

	Assets R'million	Liabilities R'million	Funding Level %
1 November 2000*	19 911	17 878	111.4%
31 March 2001*	16 502	20 140	81.9%
31 March 2002*	16 048	18 992	84.5%
31 March 2003*	13 243	18 370	72.1%
31 March 2004*	15 095	18 537	81.4%
31 March 2005	16 369	21 898	74.8%
31 March 2006	19 204	22 197	86.5%
31 March 2007**	21 570	20 414	105.7%
31 March 2008**	19 850	17 873	111.1%
31 March 2009**	19 614	17 919	109.5%
31 March 2010**	19 662	16 827	116.8%
31 March 2011**	18 852	16 119	117.0%
31 March 2012**	18 339	15 993	114.7%
31 March 2013**	18 313	16 146	113.4%
31 March 2014**	17 218	14 235	121.0%
31 March 2015**	16 757	13 612	123.1%
31 March 2016**	15 630	11 823	132.2%

* These figures are drawn from the actuarial valuation reports prepared by NBC Consultants and Actuaries.
** Liabilities include any contingency reserves held.

3. DEVELOPMENTS SINCE THE PREVIOUS VALUATION DATE

Pension increases

3.1 Pensions in course of payment are increased by 2% per annum in terms of the rules of the fund.

Bonus Payments

3.2 With effect from 31 March 2007 the rules of the fund were amended to allow the trustees to grant ad-hoc bonus payments to pensioners if the value of the fund's assets is in excess of its liabilities. Such bonuses may only be granted with the approval of the Board of Directors of Transnet.

3.3 Ad-hoc bonuses of 10% of annual pension were paid to all pensioners in June 2016 and bonuses of 11% of annual pension were paid to all pensioners in November 2016. The bonus paid in June 2016 was accounted for in the previous valuation.

3.4 A further bonus payment equal to 10% of annual pension, which was approved by the trustees and Transnet, was paid in June 2017. This has been allowed for in the current valuation by adjusting asset values by R 152 million.

Administration and actuarial services

3.5 The fund was administered by Momentum Retirement Administrators during the valuation period.

3.6 Alexander Forbes are the appointed actuaries to the fund.

4. MEMBER DATA

The valuation of the fund at 31 March 2017 was based on the membership detailed below. Further statistics, including a reconciliation of the current membership with that present at the previous valuation, are provided in appendix 2.

Pensioners

4.1 Details of the pensioners and annual pension statistics at the valuation date are provided in the table below:

	Number	31 March 2017 Total Annual Pensions (R'000)	Average Annual Pensions (R)
Pensioners			
- Male	16 352	710 083	43 425
- Female	702	23 385	33 312
Widow(er)s			
- Male	70	2 140	30 576
- Female	35 623	915 082	25 688
Children	147	2 234	15 194
Total	**52 894**	**1 652 924**	**31 250**

4.2 We note that the number of pensioners is lower than that shown in the financial statements, which show a higher number of new beneficiaries than were present in the valuation data.

4.3 The corresponding statistics at the previous valuation date have been provided for comparison:

	Number	31 March 2016 Total Annual Pensions (R'000)	Average Annual Pensions (R)
Pensioners			
- Male	18 013	762 038	42 305
- Female	746	25 025	33 546
Widow(er)s			
- Male	67	2 033	30 344
- Female	36 882	932 906	25 294
Children	166	2 163	13 029
Total	**55 874**	**1 724 165**	**30 858**

4.4 The valuation data includes 70 pensioners in terms of Railways and Harbours Pensions Amendment Act No. 26 of 1941 (63 male pensioner and 7 female pensioners), compared to 102 at the last valuation.

5. ASSETS

5.1 This section sets out the value placed upon the fund's assets. It first deals with the matched cashflow portfolio and then with the fund's assets in aggregate.

Matched cashflow portfolio

5.2 The liabilities of the fund are entirely nominal and the trustees have targeted a strategy that will match the cashflows of approximately 85% of these liabilities at the inception of the structure. I am satisfied that the matched portfolio, currently at 90.1% of the fund's liabilities as reported by the fund's asset consultants, is appropriate. This is an increase from 82.8% at the previous valuation.

Unmatched portfolio

5.3 The fund, together with its asset consultants, devised an investment policy in respect of the remainder of the fund's assets. This policy follows a more aggressive investment strategy than that of the matched portfolio. In my opinion this is appropriate as the unmatched portion is primarily intended to cover the balance of the unmatched liabilities and the "reserves" which would be used to fund future pension bonuses, as affordable. Given that the balance of unmatched liabilities are long-term liabilities, and that the pension bonus reserve would look to maximise the assets in this reserve in order to maximise future bonuses, I am satisfied with the approach followed in setting this investment policy.

Fund assets

5.4 The composition of the fund's assets at market value, as reported in the audited annual financial statements, is set out in the following table:

	Market value (R'million)	Allocation %
Cash and Deposits	3 633	23.7
Commodities	172	1.1
Debt Instruments	7 541	49.3
Equities	3 601	23.5
Collective investment schemes	278	1.8
Hedge Funds	13	-0.2
Private Equity Funds	347	2.3
Derivative market investments	(284)	(1.6)
Investing in participating employer	4	0.1
Total investments	**15 306**	**100.0**
Plus: Current assets	120	
Less: Current liabilities*	(33)	
Less: Pension bonus in June 2017	(152)	
Total assets for valuation purposes	**15 241**	

** Includes unclaimed benefits*

Valuation of assets

5.5 For purposes of this actuarial valuation, the assets have been taken into account at 100% of fair (or market) value and no investment margin has been set aside. Therefore the assets of the fund have been taken into account at R 15 241 million as at the valuation date. This is consistent with asset valuation methodology applied to the valuation of the fund's liabilities.

Fund returns

5.6 The assets of the fund earned approximately 11.18% per annum during the valuation period, based on the audited financial statements and assuming that cash flows for each year occurred in the middle of that year. This investment return is net of investment management fees.

5.7 This return should be considered in the context of the 8.95% per annum assumed in the previous actuarial valuation report.

Appropriateness of assets

5.8 I am satisfied that the current investment strategy provides an appropriate match of the fund's liabilities.

6. VALUATION METHOD AND BASIS

The valuation has been conducted on the basis of the benefits and other provisions of the rules as at 31 March 2017. The liabilities of the fund are entirely nominal. Assets are reflected at market value.

Valuation approach

6.1 The liabilities are calculated as the present value of projected future pension payments at the date of valuation. The future pension payments and pension increases are discounted to the valuation date using the valuation discount rate.

6.2 The in-force future pension payments were calculated by applying a best-estimate probability basis to future pension payments, allowing for future pension increases in terms of the rules of the fund. This method is appropriate for a fund with a membership of only pensioners.

Principal actuarial assumptions

6.3 In setting the assumptions to be used for estimating the liabilities of the fund current actuarial principles and the Alexander Forbes best practice "house view" have been followed.

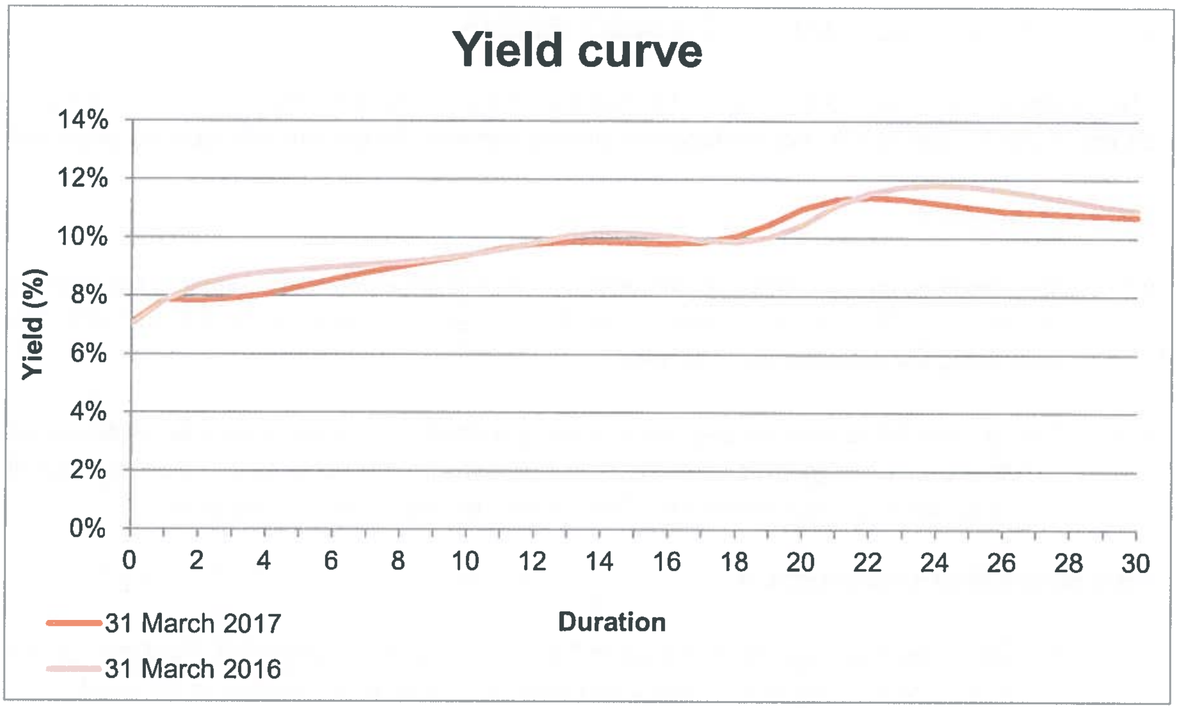
6.4 Current practice is for these assumptions to be "best-estimate" assumptions. Therefore, no deliberate margins of conservatism would be included in the assumptions and the assumptions would generally be motivated by reference to the experience of the fund, statistical evidence and yields on government or corporate bonds.

6.5 In addition, the assumptions should be reasonable both independently and combined. The assumptions used to value the liabilities must be consistent with those used to value the assets.

6.6 The actuarial assumptions used in the valuation of the liabilities are detailed below:

Yield curve

6.7 The gross discount rates are determined with regard to the all bond yield curve on 31 March 2017. I believe an appropriate matched investment strategy for the fund would reflect an asset profile of primarily bond investments. I have therefore used the yield curve as the discount rate, as implied by the efficient market hypothesis. The graph below compares the yields as at 31 March 2017 and 31 March 2016:



6.8 As in the previous valuation, the expected future cashflows at each duration have been discounted using the yield implied by the yield curve at each specific duration.

6.9 The average discount rate which produces equivalent results is 9.15% p.a. compared to 8.95% in the previous valuation.

6.10 The fund's liabilities have duration of approximately 5.6 years, compared to approximately 5.7 years in the previous valuation.

6.11 No provision for asset management fees has been made, since the out-performance over the benchmark produced by active asset management should exceed the asset management fee.

Inflation

6.12 A future inflation assumption can be derived at each duration on the yield curve by subtracting the yield on inflation-linked government bonds from a similar duration fixed-coupon bond yield. The fund's liabilities have duration of approximately 5.6 years, corresponding to an inflation estimate of 5.93%, compared to 7.13% at the last valuation.

6.13 This assumption is not used in the determination of any of the liabilities in the fund and should be used purely as a comparative.

Mortality assumptions

6.14 The mortality assumptions have, at this stage, remained unchanged from the previous valuation.

6.15 The fund-specific Transnet Pensioner Mortality Tables have been retained to represent the expected mortality of all pensioners.

Category	Average Pension Weighted Age 31 March 2016	 31 March 2017
Male Pensioners	77.6 years	78.2 years
Female Pensioners	75.9 years	76.7 years
Male Spouses (Widowers)	62.1 years	63.4 years
Female Spouses (Widows)	75.3 years	75.8 years

6.16 The fund-specific Transnet Pensioner Mortality table can be summarised as follows:

Age	Average annual death rate in the stated age band Female (%)	 Male (%)
20 to 24	0.26	0.79
25 to 29	0.34	1.03
30 to 34	0.42	1.27
35 to 39	0.52	1.51
40 to 44	0.63	1.75
45 to 49	0.74	1.99
50 to 54	0.87	2.24
55 to 59	1.06	2.48
60 to 64	1.40	2.72
65 to 69	2.02	3.35
70 to 74	3.14	4.95
75 to 79	5.17	7.80
80 to 84	8.88	11.89
85 to 89	14.66	17.36
90 to 94	22.40	24.80
95 and older	30.88	33.14

Remarriage liability

6.17 The rules of the fund were previously amended so that only a spouse who was married to a pensioner on or before 31 March 2007 would be eligible to claim a benefit on the death of the pensioner. This was allowed for in the valuation by assuming that 80% of pensioners are currently married and that all male pensioners are 5 years older than their spouses.

6.18 The actual marital statuses of pensioners and their spouses' details are not reliable in the data received. The administrators continue to update this information where possible.

Solvency reserve basis

6.19 I have determined the level of the solvency reserve using the discontinuance matched approach. The solvency reserve is made up of three components, namely: solvency reserve on matched liabilities, solvency reserve on unmatched liabilities and a mortality improvement reserve.

6.20 The assumptions that differ from the best-estimate valuation assumptions are:

- Discount rates: This is the yield curve, as discussed in section 6.7, but adjusted for the reasonable cost of maintaining an investment strategy of matching such assets to the liabilities of the fund (0.5% for unmatched), but taking into account the current matching and associated reduced risks (0.25% for matched).

- Post-retirement mortality: The Transnet Mortality tables were again rated down by a ½ year to allow for possible future mortality improvements.

7. VALUATION RESULTS

7.1 In order to determine the level of solvency of the fund, it is necessary to compare the total assets of the fund with the total liabilities. The fund is solvent when the value of the assets exceeds the value of the liabilities, i.e. a funding level of 100% or greater. The funding level is the ratio of the value of the assets to the value of the liabilities of the fund at the valuation date.

Value of liabilities

7.2 The present value of the liabilities in respect of pensioners, as at 31 March 2017, is given in the table below. The values as at 31 March 2016 are given for comparative purposes:

	31 March 2016 (R'million)	31 March 2017 (R'million)
Pensioners	5 344	4 947
Widow(er)s	6 017	5 889
Children	3	21
Total Liabilities	**11 364**	**10 857**

Value of assets

7.3 For valuation purposes, the value of the assets is R 15 241 million.

Value of solvency reserve

7.4 The trustees accepted and implemented a solvency reserve to afford protection against investment and mortality risk. This reserve is calculated on the difference between the fund's liabilities on the valuation basis and the liabilities on the solvency basis.

7.5 As per the previous section, this reserve has three components:

- The Transnet Mortality tables were rated down by a ½ year to allow for possible future mortality improvements. An amount of R 188 million will need to be set aside to allow for this.
- A reserve of R 238 million is required in respect of the unmatched portion of the liabilities. This was calculated by reducing the best-estimate bond yield by 0.5% to allow for the reasonable cost of maintaining the investment strategy of the fund.
- On the basis that a margin arose on the implementation of the cashflow matching strategy, there is expected to be an additional level of assets that provide a margin of protection and which would release over time. On this basis the solvency reserve in respect of the matched liabilities portion was calculated by reducing the best-estimate bond yield by only 0.25%. The reserve required for the matched portion of the liabilities amounts to R 25 million.

7.6 The total recommended solvency reserve as at 31 March 2017 amounts to R 450 million compared to R 459 million as at 31 March 2016.

Funding level

7.7 Comparing the value of the assets with that of the past service liabilities produces the following results:

	31 March 2016 (R'million)	31 March 2017 (R'million)
Total net assets	15 630	15 241
Total liabilities	11 364	10 857
Solvency reserve	459	450
Surplus/(Deficit)	**3 807**	**3 934**
Funding level	**132.2%**	**134.8%**

7.8 The fund's assets exceed its liabilities. As at the valuation date I am able to confirm that the fund is financially sound (i.e. the fund has a funding level of 100% or greater).

Comment in terms of APN 205

7.9 Whilst the value of the liabilities is based on best estimate assumptions, where relevant, and the solvency and other contingency reserves established by the trustees on my advice allow for some fluctuations in asset values and / or unexpected changes in liabilities, there is no guarantee that these reserves will prove sufficient in practice. Conversely, it is possible that the reserves may prove to be more than sufficient.

7.10 If the reserves prove to be insufficient, management action will be required to rectify the position. The uncertainty of the adequacy or otherwise of the reserves held is unavoidable and the actual outcome can only be determined when the fund ceases to have any further liabilities.

8. SUMMARY AND RECOMMENDATIONS

8.1 The fund does not receive regular contribution income and all the benefits are payable from a combination of investment income and the sale of assets. This will result in the fund's assets reaching a point where they start to reduce over time. The market value of the fund's assets is very important and has a direct impact on the financial position of the fund.

8.2 The actuarial valuation of the Transnet Second Defined Benefit Fund revealed a surplus of R 3 934 million after allowing for a solvency reserve of R 450 million, and a funding level of 134.8% as at the valuation date.

8.3 While the valuation results show a strong financial position, it would be useful for the trustees to bear in mind that, should there be a move to target inflationary pension increases, there would need to be a change in the fund's reserving policy and asset structure. For information purposes only, I have included under appendix 4 an illustration of the funding position had inflation been the fund's target. This has no bearing on the financial position of the fund and should be used for management information purposes only. Based on the results, the fund can afford two 13th cheques per annum for the foreseeable future.

8.4 Although the improvements in pensioner longevity are not yet significant, I have also shown in appendix 4 the impact of allowing for mortality improvements of 0.5% per year going forward.

8.5 I am able to confirm that the fund was in a sound financial condition as at the valuation date.

8.6 I am satisfied that the current investment strategy is appropriate and that the assets adequately match the liabilities.

A R Pienaar

Fellow of the Actuarial Society of South Africa
and Fellow of the Institute of Actuaries
in my capacity as the valuator of the fund
and as an employee of
Alexander Forbes Financial Services (Pty) Ltd

For the purposes of professional regulation the primary professional regulator of the signatories to this report is the Actuarial Society of South Africa.

August 2017

APPENDIX 1: SUMMARY OF BENEFITS AND CONTRIBUTIONS

A summary of the main benefits is given below. Full details are contained in the registered rules of the fund. Where there are special cases or benefits for particular members, these have been taken into account in the valuation.

Spouse's pension on death

In terms of the rules of the fund a pension equal to 70% of the member's pension immediately prior to his death. If the pensioner dies before the normal retirement age, the pension is increased by the ratio of pensionable service plus service from date of death to normal retirement age over pensionable service.

If the spouse is the result of a marriage after retirement, and is more than five years younger than the deceased pensioner, the benefit is reduced.

Only spouses who were married to principal pensioners at 31 March 2007 are entitled to this benefit.

Dependent children's pensions on death

In terms of the rules of the fund on the death of a pensioner a dependent child receives a pension at the discretion of the fund and on a basis determined by the fund, but not more than 80% of the spouse's pension.

If dependants are children, the pension is normally payable to age 18. This may be extended up to age 26 by the trustees in cases where children remain dependent after age 18.

Pension increases

The rules provide for a pension increase of 2% per annum on the anniversary of the retirement date.

APPENDIX 2: SUMMARY OF DATA

Membership reconciliation

	Pensioners	Spouses	Children & Other Dependants	Total
Membership 31 March 2016	18 759	36 949	166	55 874
Adjustment	(2)	2	13	13
Revised	**18 757**	**36 949**	**167**	**59 030**
New pensioners	-	843	8	851
Exits (deaths and terminations)	(1 703)	(2 101)	(40)	(3 844)
Membership 31 March 2017	**17 054**	**35 693**	**147**	**52 894**

We note that the number of pensioners is lower than that shown in the financial statements, which show a higher number of new beneficiaries than were present in the valuation data.

The adjustments shown above are generally the result of changes in member numbers on the administration system.

Member statistics

Pensioners	Male			Female		
Age	Number	Annual Pension (R'000)	Average Pension (R')	Number	Annual Pension (R'000)	Average Pension (R')
25 - 29	1	10	10 044	-	-	-
30 - 49	12	175	14 594	1	16	16 200
50 - 54	99	2 131	21 527	17	292	17 178
55 - 59	434	9 904	22 820	39	777	19 930
60 - 64	876	24 041	27 445	100	2 288	22 876
65 - 69	1 420	52 202	36 762	89	2 679	30 102
70 - 74	2 683	135 822	50 623	100	3 782	37 822
75 - 79	4 331	200 860	46 377	111	3 761	33 883
80 - 84	3 541	154 622	43 666	143	4 978	34 814
85 - 89	1 978	89 299	45 146	67	2 911	43 443
90 - 94	731	32 733	44 779	31	1 784	57 543
95 - 99	216	7 774	35 993	4	117	29 253
100 - 104	24	465	19 356	-	-	-
105 - 109	4	31	7 632	-	-	-
110 - 114	2	14	7 224	-	-	-
Total	**16 352**	**710 083**	**43 425**	**702**	**23 385**	**33 312**

Widow(er)s	Male			Female		
Age	Number	Annual Pension (R'000)	Average Pension (R')	Number	Annual Pension (R'000)	Average Pension (R')
35 - 39	-	-	-	10	188	18 815
40 - 44	3	67	22 404	86	1 923	22 364
45 - 49	4	135	33 774	405	8 923	22 032
50 - 54	9	316	35 083	1 190	24 763	20 810
55 - 59	10	325	32 455	2 324	49 768	21 415
60 - 64	11	425	38 607	3 461	71 166	20 562
65 - 69	16	412	25 728	4 788	100 746	21 041
70 - 74	5	111	22 171	5 870	135 830	23 140
75 - 79	5	141	28 224	6 497	164 671	25 346
80 - 84	5	134	26 702	5 308	161 414	30 409
85 - 89	2	76	37 956	3 743	126 445	33 782
90 - 94	-	-	-	1 486	55 360	37 254
95 - 99	-	-	-	394	12 548	31 849
100 - 104	-	-	-	48	1 199	24 984
105 - 109	-	-	-	13	137	10 508
Total	**70**	**2 140**	**30 576**	**35 623**	**915 082**	**25 688**

Children & Other Dependants	Male			Female		
Age	Number	Annual Pension (R'000)	Average Pension (R')	Number	Annual Pension (R'000)	Average Pension (R')
10 – 14	-	-	-	4	18	4 563
15 – 19	11	104	9 413	15	88	5 880
20 – 24	9	37	4 131	7	48	6 849
25 – 29	3	28	9 260	2	26	13 194
30 – 34	2	19	9 330	2	26	13 146
35 – 39	1	3	2 520	6	82	13 626
40 – 44	6	98	16 288	7	119	16 951
45 – 49	5	108	21 677	5	224	44 851
50 – 54	9	115	12 781	6	124	20 628
55 – 59	14	302	21 579	7	175	25 058
60 – 64	3	95	31 796	10	173	17 322
65 - 69	1	16	16 260	6	117	19 540
70 - 74	-	-	-	3	58	19 300
75 - 79	-	-	-	2	22	10 752
80 - 84	-	-	-	1	8	8 172
Total	**64**	**925**	**14 447**	**83**	**1 309**	**15 770**

Reasonability checks performed

A large number of tests on the reasonability and consistency of the data were carried out, including the following:

- reconciling the number of pensioners at the valuation date and the previous valuation date, with the movements in membership reported
- reasonability tests on the pension amounts, and the various dates (dates of birth, dates of pension commencement and dates of exit)
- identifying any missing or invalid data fields
- identifying changes in membership details
- reviewing the fund's annual financial statements
- calculation of the fund's investment returns

After performing the data checks described above, a number of queries were sent to Momentum Retirement Administrators where omissions or inconsistencies in the data were identified. The responses received from the administrators resulted in the records of some pensioners being either updated or deleted. Given the checks performed on the data, I am satisfied with the general accuracy and completeness of the data provided and with its suitability for purposes of this valuation.

APPENDIX 3: ANALYSIS OF CHANGE IN FINANCIAL POSITION

The valuation at 31 March 2017 disclosed a surplus in assets of some R 3 934 million after taking into account the recommended solvency reserve. The previous valuation at 31 March 2016 showed a surplus of some R 3 807 million on the market value of assets. The factors that led to a change of approximately R 127 million have been analysed according to source and the results of this analysis are given in the following table.

Item	R'million
Valuation Surplus/(Deficit) as at 31 March 2016	**3 807**
Interest on valuation surplus/(deficit)	341
Investment return	318
Change of best estimate assumptions	(146)
Ad hoc bonus payments*	(339)
Change in solvency reserve	50
Mortality profit/(loss)	(58)
Miscellaneous	(39)
Valuation Surplus/(Deficit) as at 31 March 2017	**3 934**

* *This figure excludes the bonus amount that was paid in April 2016 as this amount was already allowed for in the surplus as at 31 March 2016.*

Interest on valuation surplus/(deficit)
Interest at the assumed valuation rate on the previous surplus produced a profit of R 341 million over the inter-valuation period.

Investment return
The investment return achieved on the assets (approximately 11.18%) was higher than that anticipated on the previous valuation basis of 8.95%. This resulted in an investment gain of R 318 million over the inter-valuation period.

Change of best estimate assumptions
Since the previous valuation, changes in bond yields have resulted in a net increase of R 146 million in the assessed value of the liabilities, from R 10 710 million to R 10 857 million.

Ad hoc bonus payments
The fund granted pensioners ad hoc bonus payments of 11% of annual pensions in November 2016 and 10% of annual pensions in April 2017. This was funded out of the fund's surplus. The result was a strain of approximately R 339 million.

Change in solvency reserve
A change in the solvency reserve has resulted in a profit of R 50 million.

Mortality profit/(loss)
The actual mortality experience was lighter than expected which produced a strain of R 58 million.

Miscellaneous
There was a miscellaneous loss of R 39 million arising from various individually insignificant sources.

APPENDIX 4: FUNDING LEVEL COMPARISON

This section is for the trustees' information purposes only, to assist in understanding the relative strength of the fund and its change in financial position over the previous financial period, relative to inflation. I have also illustrated the impact of possible future mortality improvements.

While the valuation results show a strong financial position, it would be useful for the trustees to bear in mind that, should there be a move to target inflationary pension increases, there would need to be a change in the fund's reserving policy and asset structure.

Annual bonus payments

The following table illustrates the funding position at 31 March 2017 should the fund target an annual bonus equal to a 13th cheque payable in November, or alternatively, two such bonuses each year payable in April and November. This has no bearing on the actual reported financial position of the fund and should be used for management information purposes only.

	One bonus p.a. (R'million)	Two bonuses p.a. (R'million)
Total net assets	15 241	15 241
Total liabilities	11 746	12 709
Solvency reserve*	488	525
Surplus/(Deficit)	**3 007**	**2 007**
Funding level	**124.6%**	**115.2%**

** Includes estimated increase in solvency reserve as a result of bonus payments*

Inflationary pension increases

The following table considers the funding position if the fund were to target inflationary pension increases, including an annual bonus equal to a 13th cheque payable in November. This has no bearing on the actual reported financial position of the fund and should be used for management information purposes only.

As set out in the previous sections, the market's expectation of inflation at the valuation date is 5.93% based on best estimate assumptions (7.13% at 31 March 2016).

	75% CPI (incl. one bonus p.a.) (R'million)	75% CPI for the first 3 years, 100% CPI thereafter (incl. one bonus p.a.) (R'million)
Total net assets	15 241	15 241
Total liabilities	13 549	14 283
Solvency reserve	637	719
Surplus/(Deficit)	**1 055**	**239**
Funding level	**107.4%**	**101.6%**

Please note that the above results are based on the assumption that an appropriate inflation-linked cashflow matching strategy is implemented for future pension payments. If this is not done, the level of solvency reserve desired will be higher than that shown above. No allowance has been made for the potential cost of the restructuring of the fund's existing assets to such a possible arrangement.

Annual improvements in future mortality

The following table illustrates the funding position should the fund experience mortality improvements of 0.5% p.a. into the future. This has no bearing on the actual reported financial position of the fund and should be used for management information purposes only.

	Current mortality (R'million)	**0.5% p.a. mortality improvements (R'million)**
Total net assets	15 241	15 241
Total liabilities	10 857	10 963
Solvency reserve	450	458
Surplus/(Deficit)	**3 934**	**3 820**
Funding level	**134.8%**	**133.4%**