

# SURPLUS? WHAT SURPLUS? DID THE PENSION FUNDS SECOND AMENDMENT ACT ACHIEVE ITS AIMS?

**By RWD Davis and S Kendal**

*Submission received 31 October 2011*

*Accepted for publication 1 September 2012*

## ABSTRACT

The Pension Funds Second Amendment Act, 2001 required funds to provide statutory minimum benefits for exiting members and pensioners. Any surplus arising at the statutory valuation following the promulgation of this Act was to be distributed—initially to former members and pensioners to top up their benefits to the statutory minimum, and then equitably to all stakeholders. Surplus available in retirement funds was originally estimated at R80bn, but the surplus distributed by May 2012 was only about R47,6bn. This paper considers some reasons for this discrepancy and, in particular, gives an analysis of 447 surplus valuation reports. It shows that, by strengthening their valuation assumptions and motivating contingency reserves, actuaries reduced the surplus by R10bn for these 447 funds. The paper questions whether the strengthening of valuation bases was justified and examines critically the new actuarial methods introduced following the promulgation of the Act.

## KEYWORDS

Pension funds; distribution of surplus; valuation methods; valuation assumptions; contingency reserves; public interest

## CONTACT DETAILS

Mr Richard Davis, PO Box 774, Rondebosch, 7701; Tel: +27(0)21 685 4346;

Fax: +27(0)21 685 7994; E-mail: [richard@fasnet.co.za](mailto:richard@fasnet.co.za)

## 1. INTRODUCTION

1.1 Before the promulgation of the Pension Funds Second Amendment Act (PFSAA)<sup>1</sup> on 7 December 2001, the surplus in retirement funds was estimated at R80bn.<sup>2</sup> Section 15B of the PFSAA required that the surplus at the statutory valuation following the promulgation of the Act (the ‘surplus valuation’) should be distributed.

1.2 At a Financial Services Board (FSB) feedback session on 30 May 2012, the Chief Actuary said that R47.6bn had been distributed to date with 200 schemes still to be approved. This paper considers some of the reasons for the R32.4bn discrepancy, and focuses on the changes to the actuarial assumptions and methodologies that were introduced after the promulgation of the PFSAA.

1.3 Late in 2004 a valuator from a well-known consultancy was overheard by one of the authors at a social occasion being asked about the implications of the PFSAA. His answer, “Surplus? What surplus?” forms the main title of this paper since he went on to imply that, in most cases, PF117<sup>3</sup> gave enough latitude to absorb any surplus that might be available.

1.4 Most of the results of the paper are based on a very substantial sample of the surplus valuation reports of defined benefit (DB) funds (or, in many cases, the DB sections of hybrid funds). The surplus valuation reports of defined contribution (DC) funds were not analysed.

1.5 The authors did not read each valuation report in full. Rather, the analysis of surplus and other information from each of the reports was captured on a database. These aggregate figures will obscure some of the more subtle elements of the valuations, but given the size of the sample, the trends observed nonetheless revealed important features of the surplus-distribution exercise.

1.6 The discussion necessarily depends on interpretation of the PFSAA. The authors have no legal training but have relied on a plain reading of the PFSAA and in addition have consulted Advocates Breitenbach, Greig and Duminy separately on different legal points. The interpretations given, however, remain those of the authors. There is perhaps an issue beyond mere interpretation or compliance and that is the requirement that actuaries act in the public interest. A precise definition of ‘public interest’ is beyond the scope of this paper but one can ask whether the intention or spirit of the legislation has been well-served by its implementation.

---

1 Act no. 39 of 2001 as amended

2 S. Mabotja. Pension Fund Surpluses: Who gets the R80bn Bonsela, *Financial Mail*, 1998

3 Pension Fund Circular PF117, Registrar of Pension Fund, July 2004

1.7 The thesis of the paper is that some of the strengthening of valuation assumptions and changes in methods introduced at the surplus valuation are not supported by the experience in the funds, are not encouraged by legislation and are perhaps contrary to generally accepted actuarial principles.

## 2. THE CONTEXT OF THE SECTION 15B SURPLUS DISTRIBUTION

### 2.1 BACKGROUND

2.1.1 The PFSAA partially addresses two historical issues:

- (1) Members who left a fund before retirement might not have received their full actuarial reserve and pension increases might not have kept pace with inflation; and
- (2) the ownership of any actuarial surplus arising in a fund needed resolution.

2.1.2 Andrew (2004) sets out the history:

- Milburn-Pyle & Lennox (1990) argued that, in a DB fund, any surplus represents over-payment by the employer and the employer must approve any use of surplus;
- in 1997 a Draft Bill on Surplus Repatriation was tabled in parliament. The concept of minimum benefits (including pension increases) was introduced. ‘Repatriation’ of surplus meant the transfer of surplus to employers;
- the publicity surrounding the Kransdorff case was the first public indication that the labour movement was contemplating legal action concerning past transfer terms;
- in March 1999, consultation commenced between the FSB and COSATU. Following complaints from business, the matter was referred to NEDLAC;
- in August 2000 the NEDLAC negotiations deadlocked;
- a Government team proceeded to draft a bill; and
- after four weeks of hearings before the Portfolio Committee on Finance and deliberation on the clauses of the Bill, members of all political parties agreed on changes to be made to the Bill.

2.1.3 The PFSAA came into effect on 7 December 2001.

### 2.2 THE PENSION FUNDS SECOND AMENDMENT ACT

2.2.1 The PFSAA establishes statutory minimum benefits for exiting members and pensioners. Briefly, for DB funds:

- the minimum benefit for members who leave the fund before retirement is the value of the accrued pension benefit at the date of exit, the basis of calculation being left to the discretion of the Registrar of Pension Funds (“the Registrar”); and
- funds must institute a pension increase policy to be applied annually and pensions must be increased in line with inflation at least at each statutory valuation of a fund, subject to affordability criteria.

2.2.2 Andrew (op. cit.) sets out the conflicting positions of labour and business in August 2000 when discussions crystallised into a deadlock:

Labour's position was that:

- former members who had transferred to a DC fund should have received at least their accrued liability multiplied by the ratio of the fair value of assets to the actuarial value of assets, and past transfers should be amended to reflect this; and
- actuarial surplus belonged to the retirement fund and should be used for the benefit of the members of that fund unless it could be shown to have resulted from deliberate over-contribution by the employer (i.e. payment by the employer of more than the amount recommended by the actuary).

Business's position was that:

- any actuarial surplus had arisen because of overly conservative assumptions relative to the experience of the fund; and therefore had resulted, in effect, from the payment by the employer of more contributions than had actually been required;
- the members had no rights to the surplus; and
- the employer had the right to use any actuarial surplus to fund a contribution holiday.

2.2.3 In respect of surplus, the PFSAA was therefore a compromise: business would have no absolute right to surplus, but neither would there be full restitution of former member benefits as demanded by labour. Restitution would be extended to all former members,<sup>4</sup> but only if there was sufficient actuarial surplus at the actuarial valuation following the promulgation of the PFSAA. In such cases, there would be a compulsory distribution of surplus, but thereafter the former members' rights would cease. Funds would not be compelled to distribute surplus arising after the initial distribution date, but the rules governing any such future distributions were legislated.

## 2.3 WHAT SURPLUS?

2.3.1 It is clear from the Pension Funds Act, 1956 ("the Act")<sup>5</sup> and the PFSAA that the surplus valuation is a financial-soundness valuation to determine both the reserves to be held and the contribution rate required in the future.

2.3.2 The PFSAA defines actuarial surplus for DB funds as the difference between:

- (a) the actuarial value of assets less member and employer surplus accounts; and
- (b) the actuarial value of accrued liabilities plus contingency reserve accounts.

2.3.3 A contingency reserve account may be established by the board of a fund on the advice of the valuator to provide for explicit contingencies.

2.3.4 On 22 April 2003 the Minister of Finance issued regulation 35 to the PFSAA:

- (1) By virtue of the fact that—
  - (a) the Act vests power in boards of funds to establish contingency reserve accounts;
 and

---

4 As defined in the PFSAA.

5 Act no. 24 of 1956 as amended

- (b) the establishment of contingency reserve accounts reduces the actuarial surplus available for apportionment and increases the possibility that actuarial surplus may be insufficient to enhance benefits previously paid to former members to the level prescribed in section 15B(5)(b) of the Act,
- no fund may, with effect from the date of commencement of this regulation, establish any contingency reserve account under circumstances where a reasonable inference may be made that the establishment of the account is contrary to the duties of the relevant board under section 7C(2)(b) of the Act and motivated by bad faith.
- (2) The establishment and magnitude of any contingency reserve account by a fund—
- (a) must be motivated by the valuator in the relevant report on the statutory actuarial valuation; and
  - (b) may, where the Registrar is not satisfied with any such motivation, be rejected by the Registrar

Section 7C of the Act requires the board of a fund to act in good faith with due care and diligence.

2.3.5 The Minister of Finance is therefore concerned that funds may establish contingency reserve accounts in bad faith in order to deny former members access to the surplus in the fund.

2.3.6 Contingency reserves may be established only for explicit contingencies. In terms of standard actuarial practice, the valuator should have identified all such contingencies at the previous valuation (with the exception of those that might only have arisen since the previous valuation, such as surplus-distribution expenses) and will have placed a value on them, albeit via implicit margins in the assumptions.

2.3.7 It can be confirmed from various sources that the valuation assumptions used before the promulgation of the PFSAA contained margins for prudence:

- the position of business at the NEDLAC negotiations was that surplus arose from overly conservative assumptions relative to the experience of the fund (Andrew, 2004);
- Gluckman & Kamionsky (1997) contend that most actuarial valuation bases contain various margins for conservatism;
- Andrew (1998) states that conservative assumptions are commonplace;
- as discussed in section 4.5.5, the previous assumptions generated an overall surplus; and
- historically, implicit margins were considered by the actuarial profession and the Registrar to be sufficiently prudent for financial soundness.

2.3.8 The PFSAA therefore does not particularly require a strengthening of valuation assumptions, nor is it likely that the legislature envisaged any change in the meaning of ‘surplus’. By issuing regulation 35, the Minister of Finance seems to encourage a close scrutiny of existing margins for prudence because any excessive margins would reduce the likelihood of benefit restitution.

## 2.4 PENSION FUND CIRCULAR PF117

### 2.4.1 THE ISSUANCE OF THE CIRCULAR

2.4.1.1 In July 2004 the Chief Actuary, acting for the Registrar, issued Pension Fund Circular PF117. This circular introduced new and untested methods. Unlike regulation 35, which has the effect of being law, the Registrar's circulars are not law but reflect what the Registrar would normally find acceptable. Furthermore, the Registrar is still required to apply his mind in each case when he exercises his discretion.

2.4.1.2 In many previous valuations, the degree of prudence in a basis was not easily quantifiable because of the implicit margins in the various assumptions. This lack of transparency was now less acceptable because of the requirements and implications of regulation 35. PF117 sought to address this by requiring 'best-estimate' assumptions (i.e. no margins for prudence) combined with explicit contingency reserves. One of these contingency reserves was a 'solvency reserve' which could be a transparent repository of 'prudence'.

### 2.4.2 PROBLEMS WITH THE CIRCULAR

2.4.2.1 The authors' view is that there are technical difficulties with PF117.

2.4.2.2 The authors support the above move to transparency but find the further imposition of the no-deficit clause to be actuarially unjustifiable. The no-deficit clause states that any contingency reserves, including the solvency reserve, cannot put the fund into a deficit. One exception to this is the investment reserve. Previously, a fund in deficit would be required to set up a 'scheme of contribution' (i.e. increased employers' contributions for a period) in order to restore the financial soundness.

2.4.2.3 The no-deficit clause effectively implies that a contingency reserve is important enough to deprive a former member of restitution but not important enough to require the employer to increase contributions for a period.

2.4.2.4 The no-deficit clause decouples the reserving basis from the funding basis, i.e. funding must be on a best-estimate basis while the reserving can be anything from a best-estimate basis up to a very conservative basis (the full range allowed by PF117), simply depending on how much surplus would be revealed.

2.4.2.5 The option to reduce calculated actuarial reserves for explicit contingencies if there are insufficient assets to cover them is an unconventional approach and could place funds in jeopardy.

2.4.2.6 Funding on a best-estimate basis (which by the definition used by the Actuarial Society of South Africa (ASSA)<sup>6</sup> would have a 50% chance of being inadequate) has not been the past practice in South Africa. The authors ask whether the public would accept a 50% risk that assets will be insufficient to meet future benefits as being 'financially sound' and that, if the public were aware of this, whether they would call into question the credibility of the actuarial profession and the Registrar.

---

6 Letter from the Chairman of the Retirement Matters Committee to the editor of *Personal Finance* dated 11 December 2007.

2.4.2.7 Investment reserves are allowed to put a fund into a deficit, but PF117 also allows the option of eliminating investment reserves by reclassifying them as part of the solvency reserve. Solvency reserves may be reduced or set to nil if there are insufficient assets. The adoption of this approach to reduce reserves could leave funds exposed to market fluctuations. In implementing PF117, many funds adopted a market-value approach to assets and only 21 of the sample of 447 still retained investment reserves.

#### 2.4.3 THE EFFECTS OF THE CIRCULAR

2.4.3.1 Actuaries could therefore find themselves in a dilemma where they wished to set up prudent reserves that would put the fund into deficit, but were prevented from doing so by PF117. A deficit would require increased employers' contributions to restore financial soundness. So applying PF117 would, in such cases, have the effect of perpetuating an unsound condition. It appears from the analysis of the sample given in section 4 that the way many actuaries dealt with this dilemma, whether consciously or not, was to use a 'best-estimate' basis that was not really a best estimate, but rather more prudent (in most cases stronger than their previous 'prudent' basis).

2.4.3.2 Nonetheless, the bases set out in PF117 for the various contingency reserves allowed actuaries to substantially increase their reserves relative to the previous conservative reserving basis. Importantly, however, PF117 did not actually require actuaries to strengthen their valuation assumptions or to motivate contingency reserves. That responsibility remains with the actuary and, in the case of contingency reserve accounts, is constrained by regulation 35.

2.4.3.3 In cases where the Registrar's guidance conflicts with the provisions of the Act and regulations, the Act and regulations should prevail.

2.4.3.4 One consequence of the no-deficit condition is the relatively large number of schemes on precisely 100% funding level (87 of the sample of 447, of which 34 were brought to 100% with the use of a surplus expense reserve). Previously this was a relatively unusual result. There is no special provision in the PFSAA for a nil surplus.

2.4.3.5 The authors' concern with this method of reserving is not universal, by any means. An alternative viewpoint is expressed by the Chair of the Retirement Matters Committee of the Actuarial Society writing to the Editor of *Personal Finance* on behalf of the Society. He says that "By definition, a 'best estimate' valuation means that there is a 50% chance that the assets will not be sufficient to meet future benefit payments" and "ASSA thus supports the retention of an appropriate solvency reserve". Then later, with reference to the 'no deficit' condition he writes, "ASSA supports the approach that the fund is financially sound even if the solvency reserve is not fully covered by the assets" and "if for some reason the fund was to terminate on the valuation date, members would receive the full value of their accrued benefits". The Chair of the Retirement Matters Committee seems to find it acceptable that members should be satisfied with a value that has only a 50% chance of meeting their future benefit payments. It is possible that the Editor of *Personal Finance* was satisfied by this argument, but the authors remain unconvinced and submit that, if this method is to become entrenched, further research is needed.

## 2.5 THE STANDARD BANK APPEAL

2.5.1 The Standard Bank appeal<sup>7</sup> arose from two discrepant surplus valuations of the Standard Bank Group Retirement Fund. The initial surplus valuation, issued by Mr M.J. Codron, reflected a substantial surplus. (The precise amount of surplus was not recorded in the Board of Appeal’s determination.) Mr Codron was subsequently appointed as the Chief Actuary to the FSB and, in this capacity, could no longer consult to the Standard Bank Group Retirement Fund. A second valuation was performed by Mr M.G. Hayes and reflected a nil surplus.

2.5.2 Concerned by the discrepancy, the Registrar took the matter to the Board of Appeal. The Board of Appeal referred the matter back to the Registrar, asking him to consider the matter afresh in the light of the principles set out in the determination.

2.5.3 The Board of Appeal ruled that the Registrar cannot reject “a report based on actuarial assumptions which fall within the range of reasonably acceptable actuarial assumptions” merely because the Registrar would prefer other assumptions. On the other hand, the Registrar “would not be precluded from rejecting a report merely because it is based on assumptions that fall within a broad range of acceptable actuarial assumptions.” In rejecting a report, the Registrar could take into account factors outside purely actuarial considerations such as the nature, size and history (particularly the financial history) of the Fund. Moreover, the Registrar would be entitled to look at how events on which the actuary prognosticated, have unfolded between the valuation date and the date at which the Registrar makes his determination.

2.5.4 There is probably a prevailing notion amongst valuers that the Registrar is constrained to accept valuations whose assumptions fall within ‘generally accepted norms and standards’ (cf. e.g. Lowther, 2011), but the Board of Appeal ruled against such a notion.

2.5.5 One problem is that nowhere is it explicitly set out—nor is it perhaps entirely clear—what a ‘reasonably acceptable’ set of assumptions would be. Here we have an example of two senior valuers coming up with two very different results, one of which would presumably have had a very significant adverse effect on the distribution of surplus to former members. We shall see from the analysis of the sample that ‘reasonably acceptable’ norms have resulted in a very considerable range of results (from a weakening of over 40% to a strengthening of over 60% on the previous valuation basis). The profession has traditionally defended the independence of valuers in exercising their actuarial judgement. Any move towards prescription or constraint on assumptions has been resisted. While the authors do not, at this stage, advocate prescription, they do wonder if the results discussed in section 4.1 and detailed in Table A.1 of Appendix A do not give pause for some professional introspection and argue for a greater degree of self-regulation.

2.5.6 In a pre-appeal meeting, an agreement was reached between the Registrar and the Fund. One of the points of agreement was that the Registrar “is not entitled

---

7 In the appeal between Standard Bank Group Retirement Fund (appellant) and Registrar of Pension Funds (respondent), Board of Appeal, 2007



to have regard to the consequences that a particular valuation may have for actual or potential stakeholders.” As noted in section 2.3.4, however, regulation 35 specifically requires the actuary and the Registrar to consider the effect that contingency reserves will have on the potential for former members to receive a top-up of their benefit to the statutory minimum benefit.

## 2.6 THE PUBLIC INTEREST

2.6.1 In terms of the Professional Conduct Standards issued by the Professional Affairs Board of the Faculty and Institute of Actuaries,<sup>8</sup> members of ASSA are bound to act in the public interest. This document states:

The Actuarial Profession has an obligation to serve the public interest. Collectively it seeks to do so by informed contribution to debate on matters of public interest and by influencing those with power to protect and enhance the public interest. Individually *members* must maintain and observe the highest standards of conduct. The standing of the profession depends on the public’s judgement both of this collective contribution to debate on matters of public interest and of the actions and behaviour of individual *members*.

2.6.2 It is worth summarising the public-interest case for the distribution of surplus to top up former members’ benefits to the statutory minimum benefit:

- Historically, exiting members were inequitably treated in comparison with members who retired from the fund to the extent that the former members did not receive their actuarial reserve on exit.
- To the extent that surplus on exit prior to retirement was not anticipated in the actuarial basis, surplus would be generated in the fund and would accumulate with fund returns. This surplus might have been distributed to other stakeholders by way of contribution holidays, pension increases or benefit improvements.
- Ideally there should be full restitution of benefits to former members. The burden on the fund and consequently the employer, however, makes full restitution impractical.
- Therefore restitution of benefits to former members will be compulsory only if there is sufficient actuarial surplus in the fund.

2.6.3 The actuarial profession’s view on the ownership of surplus is documented by Andrew (unpublished), who notes that the aims of the PFSAA did not enjoy widespread support within the actuarial profession.

2.6.4 If the aims of the PFSAA (in making restitution to former members where reasonably possible) have, to some extent, been thwarted by actions and decisions of the members of the profession, then to that extent they have not acted in the public interest.

## 2.7 THE STATUTORY MINIMUM BENEFIT

2.7.1 The basis of calculation of the statutory minimum benefit at the date of exit is set out in Board Notice 35 (BN35) issued by the Registrar. The basis of calculation

---

<sup>8</sup> Faculty and Institute of Actuaries. Professional conduct standards, 1999

is different for former members as compared with active members. Actual returns and inflation between the date of exit and the surplus apportionment date are taken into account in the calculation of the statutory minimum benefit for former members. Margins for prudence are effectively stripped out for that period in respect of former members. The minimum benefits for active members, on the other hand, are calculated on a partly prescribed basis, which includes margins for prudence. For a former member, PFSAA requires the minimum benefit to be calculated at the date of exit and this forms the basis for a possible allocation of surplus to the former member. The spirit of PFSAA, as the authors understand it, would be to aim to give each former member a minimum benefit calculated at the time of exit. The effect of BN35, however, is not to calculate the minimum benefit at the time of exit (as if they were an active member), but retrospectively, taking events after the date of exit into account. There is no requirement in the legislation for former members to be treated differently from other members. The authors submit that this inequitable treatment may have generally been to the disadvantage of the former members in reducing the allocation of surplus to them.

2.7.2 The effect of this difference has been calculated for a hypothetical sample and the results are set out in Table A.2 of Appendix A. The actual difference will vary from case to case and will depend on the date of exit, the normal retirement date, the surplus apportionment date and the actual returns achieved by the fund between the date of exit and the surplus apportionment date. In the sample given in Table A.2, the former member's benefit is less than an equivalent active member's benefit in every single case, the largest difference being 52%. It was considered beyond the scope of this paper to undertake a more thorough investigation involving a larger sample going back to exits in the early 1980s, but it is suggested that it would be worthwhile to undertake further research to establish more clearly the effects of BN35.

2.7.3 Some commentators have suggested that the removal of the margins for former members is justified because the allocation of actual returns to the date of settlement will effectively replace any margins that have been removed. The authors agree that actual investment returns should be allocated (as required by the PFSAA) but question whether it is justified to reduce the statutory minimum benefit at the date of exit for former members. To illustrate the point, the Registrar does not require unclaimed benefits to be recalculated on a different basis when they are eventually claimed. The minimum benefit is determined at date of exit and then fixed until claimed with interest. The authors do not think that the PFSAA intended former members to get different statutory minimum benefits, and such differential treatment in the calculation of the statutory minimum benefit may breach the constitutional right to administrative justice.

2.7.4 The reader may feel that too much of a fuss is being made of the effects of BN35, especially as it still requires investigation of a wider range of examples, but it should be understood that there is a gearing effect. Consider a simple example where a former member's actual exit benefit was R7000, her minimum benefit (as per BN35) was R10000 and her minimum benefit (as per active calculation) was R15000. In such a case, the increase in top-up surplus allocation to the former member would be about

167% (provided enough surplus is actually available). Furthermore, the former member's allocation of any residual surplus (after topping up former members' benefits) would also be based on the lower amount.

2.7.5 Given the scale of the differential between benefits in Table A.2 it is worth considering whether the margins in the Registrar's basis for the minimum benefit are not excessive. The PFSAA requires the benefit to be determined on a 'fair value' basis. While this term is not defined in the PFSAA it would seem to be unfair to the other stakeholders if, in most cases, the minimum benefit turned out to be greater than the actuarial reserve value held in the fund. In such a situation the employer would have to make up the difference, or the surplus available for future distribution to stakeholders would be reduced. There would also appear to be a perverse incentive for members to resign in order to cash in their benefits. There may therefore be a case to be made that the margins in the statutory basis used for the calculation should be reconsidered.

### 3. DATA

3.1 Statutory actuarial valuation reports are public documents. In terms of the Promotion of Access to Information Act, 2000 (PAIA)<sup>9</sup> the Registrar undertook to provide the valuation reports of all DB funds under Section 15B of the PFSAA in an electronic format.

3.2 Six compact discs containing a total of 1065 documents were received from the Registrar. (Two further discs with a total of 80 documents were received at a late stage in the research and were consequently not included in the data.) Six hundred and fourteen (614) of these documents were valuation reports that fell within the range of dates envisaged in section 15B of the PFSAA. One of the reports was for an umbrella fund with 46 participating employers.

3.3 In some cases the reports were poorly scanned—for example, pages were missing or off-centre. Some reports used shading in their tables that rendered the table contents illegible when scanned. In these cases, the data were reconstructed, where possible, by referring to the values outside the tables. Where it was not possible to reconstruct all the essential information, these reports were omitted from the study.

3.4 The elimination of poorly scanned reports, duplicates, funds with no DB members and no pensioners, and schemes that had only a very small section of DB membership reduced the number of reports to 512. Of these, 65 did not have an analysis of surplus, or the analysis of surplus was illegible. The study is based on the remaining 447 reports. Any DC sections in the 447 DB funds were excluded from the data. A few of the reports were not signed and dated. These cases were included in the sample and where necessary the FSB date stamp was used to categorise the valuations.

---

9 Act no. 2 of 2000 as amended

3.5 Correspondence with the Chief Actuary indicates that 707 DB valuations in terms of section 15B had been accepted by the Registrar as at 15 March 2011. The data are therefore not complete. Nevertheless, they do constitute a substantial sample.

3.6 The data were captured by one of the authors and checked by a research assistant. The second author checked for reasonability and reviewed the extreme cases and other anomalies, which resulted in further changes. Because an analysis of surplus should reconcile the surplus at the previous valuation with the current surplus, there is an inherent check on the accuracy of the captured data. In cases where the analysis of surplus did not reconcile in the actual valuation report, the difference was added to the unallocated experience item. Cases in which the analysis of surplus reconciled to an interim valuation instead of the previous statutory valuation were included in the analysis. It was considered that this would not appreciably distort the results. In those instances in which a figure for ‘interest on surplus’ was not explicitly stated in the report, an estimate was made using the interest assumption in the previous valuation, if available. No adjustment to the analysis of surplus was made in cases in which the interest assumption in the previous valuation was not given in the valuation report.

## 4. RESULTS AND COMMENTARY

### 4.1 BEST-ESTIMATE VALUATIONS

4.1.1 Historically, as discussed in section 2.3.7, actuaries included implicit margins for prudence in their valuation assumptions. PF117, which was issued on 28 June 2004, required actuaries to strip out these margins and report a best-estimate valuation basis. One would generally expect, therefore, that the best-estimate basis would be weaker than the previous basis. Table 1 shows the surplus arising from the change to a best-estimate basis. In this table a positive percentage indicates a weaker basis and a negative indicates a stronger basis.

Table 1. Surplus arising from the change to a best-estimate basis (R millions)

Category	Number of funds	Surplus from basis change	% of liability	Contingency reserves	% of liability
Signed off before 1/9/2004	72	2 783	7,0%	-1 349	-3,4%
Basis unchanged	35	0	0,0%	-133	-0,5%
Best estimate weaker	118	1 778	6,8%	-1 881	-7,2%
Best estimate stronger	222	-7 493	-12,5%	-3 633	-6,1%
Total	447	-2 932	-1,9%	-6 996	-4,6%

4.1.2 The cut-off of 1 September 2004 was based on the assumption that valuers would need at most two months to begin implementing PF117. The 72 schemes signed off before that date could be regarded as not having been influenced by PF117, except to the extent that some of the valuers may have been involved in the production

of PF117. For these funds there was a weakening in the overall basis of 3,6% on average (taking into account contingency reserves). The data in Table A.1 show that, before PF117, just over half the bases remained the same or were weakened, increasing the likelihood that former members would receive their statutory minimum benefit. There may be some selection: the authors understand that the Registrar sent back some of the pre-PF117 valuations, presumably those where actuaries had substantially strengthened their margins.

4.1.3 In 35 schemes there was no change to the liability basis. This implies that either the valutors regarded their previously (supposedly prudent) basis as a best-estimate basis or had not really bought in to the PF117 method. Although the liability basis remained unchanged, in some cases contingency reserves were created and in a few cases reserves were released. This resulted in a wide range of change in the overall strength of individual valuation bases as can be seen in Table A.1.

4.1.4 In 118 funds actuaries eliminated some of their margins from the previous valuation basis and then motivated contingency reserves to roughly replace these margins. This is more or less what one would have expected from the rationale behind PF117. Although this happened on average, it did not really happen for each scheme. If one looks at the scheme-by-scheme strengthening or weakening of the overall basis (see Table A.1), one sees that there is a considerable range hidden in the average figure.

4.1.5 Against one's intuitive expectations, 222 schemes explicitly strengthened their basis by an average of 12,5% (using up R7,5bn of surplus). This implies that the actuaries now considered the previous basis to be substantially weaker than best estimate, notwithstanding the fact that the previous valuation basis was deemed to be financially sound and therefore a prudent basis at the time. As explained below in the discussion of the intervaluation experience, the authors do not consider this to be reasonable in general. Valutors then motivated for R3,6bn of contingency reserves, further strengthening the basis by 6,1%. Again, these average figures hide a considerable range of individual figures per scheme (see Table A.1).

4.1.6 Of the 375 valuations signed off after 1 September 2004, 128 held no contingency reserves on a best-estimate basis (except in 24 of the 128 cases where a surplus expense contingency reserve was held). This was presumably largely because of the application of the no-deficit clause. If these were truly best estimates, the authors would question the financial soundness of such schemes or would at least recommend, as suggested in ¶ 2.4.3.5, that some further research be done on the issue.

## 4.2 SUMMARY OF THE ANALYSIS OF SURPLUS

The analysis of surplus of the 447 valuations is summarised in Table 2. In that table funds are first categorised according to whether there was a surplus or a deficit at the previous valuation. Here, 'previous valuation' refers to the valuation (statutory or interim) immediately prior to PFSA, as reported in the valuation report in terms of section 15B. Funds with a surplus at the previous valuation were split into three categories depending on whether a surplus, deficit or nil surplus emerged at the valuation in terms

of section 15B. Funds with a deficit at the previous valuation were similarly categorised. ‘Controllable strains’ refers to items that the fund has some control over, namely:

- pension increases in excess of the funding level;
- pensioner outsourcing;
- contribution strains and contribution holidays;
- transfers to employer surplus accounts in terms of section 15F of the Act; and
- benefit improvements other than statutory minimum benefits.

‘Improper use of surplus’ refers to the value of improper uses of surplus in terms of section 15B(6)(b) of the Act. This figure appears only in 65 of the 447 valuations since many of the valuations did not include it, possibly leaving it for the subsequent surplus-apportionment report. ‘Statutory minimum’ refers to the cost of improving the benefits to the statutory minimum level set out in section 14B of the PFSA. ‘Economic surplus’ refers to interest and salary surplus and strains in excess of the valuation assumptions. ‘Demographic surplus’ covers withdrawal, death in service and retirement surplus or strains. ‘Pensioner mortality’ refers to surplus or strains arising from pensioner mortality. In some cases the analysis of surplus did not split the experience between the various sources of surplus; this is referred to as ‘unallocated experience’. Note that a large part of this figure arises from one fund (it was surprising that a fund of this size did not give a more detailed analysis of surplus). This figure also includes all amounts described as ‘miscellaneous’, which in the analysis of surplus is usually an aggregate of a number of less significant surplus and strains. ‘Change in basis’ includes all contingency reserves, except for the reserve for expenses that might be incurred in a surplus distribution. In valuations prior to the valuation in terms of section 15B, it was common practice to place an actuarial value on the assets. This effectively created an ‘investment reserve’ (which, in some cases, was negative). For the valuation in terms of section 15B, the market value of assets was most commonly used, except in only 21 cases. For the purposes of Table 2, all changes in methods and assumptions are counted as changes in basis. ‘Total basis change %’ is the change in basis expressed as a percentage of liabilities prior to the change. A positive percentage indicates an overall strengthening of the basis; a negative percentage an overall weakening (unlike in Table 1).

### 4.3 CONTROLLABLE STRAINS

4.3.1 Table 2 shows that the reduction in surplus due to controllable strains amounted to a net amount of R9,7bn. These strains are itemised in Table 3, together with the number of funds involved, and the surplus component of the net figure is separately identified.

4.3.2 The R1 955m allocated to contributions is not entirely under the control of the fund. There are two reasons why contributions may reduce the surplus of a fund:

- (1) the employer might under-contribute; or
- (2) contributions might be lower than expected, if salary increases are lower than expected.

The second reason is not controllable by the fund, but its effect tends to be small. Part of the total of R381m from improper use of surplus (see Table 2) is a recoupment of contribution holidays from the employer as required by section 15B(6)(b) of the PFSAA. This has not been netted off the figures shown, largely because the figure for improper use did often not appear in the valuation report but only possibly in a subsequent report on surplus apportionment.

Table 2. Summary of the analysis of surplus (R millions)

Previous valuation:	surplus			deficit			total
Section 15B valuation:	surplus	nil	deficit	surplus	nil	deficit	
Number of funds	197	77	91	6	10	66	447
Section 15b reserves	41 397	61 455	43 866	567	1 088	12 762	161 133
Analysis of surplus							
Previous surplus	8 637	5 398	2 049	-39	-33	-746	15 266
Interest on surplus	2 844	2 200	624	-11	-9	-276	5 372
Controllable strains	-2 798	-5 097	-2 592	-8	54	699	-9 742
Improper use of surplus	148	192	29	0	11	1	381
Statutory minimum	-100	-114	-211	-1	-10	-214	-650
Economic surplus	2 872	-33	-2 134	144	76	-583	342
Demographic surplus	392	-283	192	4	15	-5	315
Pensioner mortality	-76	244	-26	0	-5	-2	135
Unallocated experience	3 047	838	-422	121	4	-7	3 581
Change in basis	-6 023	-3 309	-517	-2	-98	21	-9 928
Surplus expense reserves	-204	-36	-3	-24	-5	0	-272
Distributable surplus	8 739	0	-3 011	184	0	-1 112	4 800
Total basis change %	17,0%	5,7%	1,2%	0,4%	9,9%	-0,2%	6,6%

Table 3. Controllable strains (R millions)

	Strain		Surplus		Total	
	amount	funds	amount	funds	amount	funds
Contributions	-2 523	231	568	98	-1 955	329
Employer surplus accounts	-1 033	5	249	3	-784	8
Pension increases	-6 195	154	898	112	-5 297	266
Pensioner outsourcing	-162	10	17	2	-145	12
Benefit improvements	-1 994	71	434	8	-1 560	79
Total	-11 907		2 166		-9 741	

4.3.3 R249m was released from existing employer reserve accounts, and R1 033m was allocated to employer surplus accounts. (This latter figure was generated largely by one fund.) This allocation was permitted in terms of section 15F of the PFSA as follows:

- (1) On or after the commencement date [7 December 2001], the board may apply to transfer all or some of the credit balance in an existing reserve account as defined in the rules to the employer surplus account.
- (2) The registrar may approve such transfer if he or she is satisfied that the allocation of actuarial surplus was negotiated between the stakeholders in a manner consistent with the principles underlying Sections 15B and 15C.
- (3) Any remaining portion of the credit balance in an existing reserve account shall be treated as actuarial surplus to be distributed in terms of Section 15B.

The Registrar therefore has the responsibility to ensure that the principles of section 15B of the PFSA are complied with before any transfer from an existing employer reserve account to an employer surplus account may be authorised. One of the aims of the PFSA set out in section 15B(5)(a) is that former members should, if possible, have their benefits topped up to the statutory minimum level.

4.3.4 Pension increases of R5 297m were granted, again a net figure comprising:

- 112 funds that gave pension increases lower than the increases implicit in the funding basis, generating surplus of R898m; and
- 154 funds that gave pension increases higher than the increases implicit in the funding basis, generating strains of R6 195m.

4.3.5 Benefit improvements to the value of R1 560m were granted during the intervaluation period. This comprised:

- eight funds that reduced the accrued benefits of members, generating surplus of R434m; and
- 71 funds that granted benefit improvements, generating strains of R1 994m. At least three of the benefit improvements were effective after the promulgation of the PFSA.

Without further information, it is difficult to reconcile the surplus of R434m referred to here with section 37A of the Act, which provides that no accrued benefit is capable of being reduced, except as permitted by the Act, the Income Tax Act, 1962<sup>10</sup> and the Maintenance Act, 1998.<sup>11</sup>

4.3.6 Although not significant, outsourcing of pensioners to life-assurance companies resulted in a strain of R145m.

4.3.7 Total controllable strains amount to R11,9bn. These are significant additional liabilities, which reduced the surplus available to top up the benefits of former members to the statutory minimum benefit. The extent to which this motivated these

---

10 Act no. 58 of 1962 as amended

11 Act no. 99 of 1998 as amended



pre-PFSAA surplus allocations is not a matter of public record, but it is highly probably that in the uncertainty of the run-up to the PFSAA, many funds took the opportunity to allocate surplus to active members, pensioners and employers via these mechanisms.

#### 4.4 EXPECTATIONS OF SURPLUS

4.4.1 In 2006 ASSA issued a press release,<sup>12</sup> which was a pre-emptive attempt to manage the public's expectations of surplus likely to be distributed under PFSAA. It is instructive to examine the press release in the light of the experience revealed in Table 2.

4.4.2 ASSA points to the popular expectation of R60bn to R80bn and gives various reasons why the figure is likely to be much less in practice (the authors' comments are given in brackets):

- The original figure of R80bn was an over-estimate anyway. (The authors agree, see section 6.)
- Poor investment performance in years 2001–2003 resulted in “relatively less assets than they had in the late 1990s.” (Relative to the conservative actuarial assumptions used at the previous valuation, the 447 funds analysed emerged with an investment surplus of R908m during the intervalation period.)
- The fall in long gilt yields from 12,73% to 9,21% increased the value placed on liabilities and the investment performance did not compensate for this. (There was a corresponding fall in inflation from 4,5% to 0,4%, so real rates in fact increased slightly over the same period. The fall in inflation was not mentioned in the ASSA press release. For funds with the required detail (383 out of the 447 in Table 2), the above sources generated surplus of R342m (R908m surplus from investment returns and R566m salary strain). There was also unallocated surplus of R3 581m, which probably indicates a positive figure overall.)
- The cost of introducing minimum benefits had to be accounted for. (Agreed, Table 2 shows a figure of R650m.)
- ASSA states that people are living longer “overseas” and that this improvement is a more recent phenomenon in South Africa. Pensioner mortality assumptions would thus have to be increased, resulting in liability increases of up to 15%. (This topic is discussed in section 4.5. Interestingly, for the 447 funds with relevant detail analysed in Table 2, pensioner mortality actually generated surplus of R135m.)
- DB funds were largely closed to new entrants, so extra care was needed to ensure adequate funding. (This seemed to imply that the basis or the solvency reserves needed to be strengthened but funds should already have been using bases prudent enough to handle these circumstances.)
- The cost of the surplus exercise had to be accounted for. (Agreed, this amounted to R263m in Table 2.)
- Finally, taking all factors into account and general economic and demographic conditions, a reduction in surplus was expected. (As it turned out the overall experience of the funds in the sample generated a fairly healthy surplus).

---

12 ASSA. Retirement Fund Surplus: March 2006 deadline looms, press release, 2006

4.4.3 So the experience of the funds in the sample, to the extent that it is representative of the whole situation, has not generally supported the ASSA press release. For those items that are supported by Table 2, the quanta involved do not make them major contributors to the drop in surplus. ASSA alludes to changes in assumption for the discount rate and pensioner mortality. In general, the issue of a change in basis is probably most significant. This has been quantified in Table 2 and is further discussed in section 4.5.

## 4.5 CHANGES IN BASIS

### 4.5.1 PENSION INCREASES

4.5.1.1 A particular challenge at the valuation in terms of section 15B was the allowance for pension increases. As background, there are two elements to the statutory minimum pension increases introduced by the PFSAA:

- (1) every fund should have a pension increase policy that aims to increase pensions by a percentage of inflation at least once a year; and
- (2) every three years there should be a catch-up exercise that aims to increase pensions to a level equal to the initial pension fully adjusted for inflation.

The percentage referred to in element (1) is not specified in the PFSAA. Theoretically it could be fairly modest. The catch-up exercise referred to in (2) is subject to there being sufficient assets in the notional pensioner account. This account is essentially the liability at retirement less any commutation less pension payments and expenses all rolled up with fund interest. The capacity of the notional pensioner account to contribute to the periodic 100% catch-up to the consumer price index would depend on the experience of the scheme and the strength of the liability valuation basis at the date of retirement. The initial 100% catch-up under element (2) above is not an invitation to strengthen the liability basis to fund for pension increases of 100% of inflation. In terms of section 15B(5)(b) of the PFSAA, the initial 100% inflation catch-up on surplus apportionment date was further limited to rank equally with the former member top-up to the statutory minimum benefit as a priority call on any surplus in terms of section 15B. If there were to be insufficient surplus in terms of section 15B, both these allocations would be adjusted pro rata downwards.

4.5.1.2 Section 6.4 of PGN205, the professional guidance issued by ASSA on the PFSAA states that:

Where the establishment of the pension increase policy, including any limitation on affordability, results in a discount rate used to value the pensioner liabilities which is lower than the rate used in the previous valuation, and such change cannot be justified to the Registrar, the valuator should advise the *Board* that the establishment of the policy may be viewed as a benefit improvement which may adversely affect the ability of the fund to enhance benefits for former members ...

PGN205 then reinforces this point by suggesting that in such a case the surplus valuation should be brought forward to the date of the benefit improvement, presumably to ensure that the rights of former members and pensioners are not compromised.

4.5.1.3 The authors agree that the implementation of a pension increase policy of this nature (i.e. in excess of that funded for in the previous valuation basis) is effectively a benefit improvement. Such an increase in the provision for pension increases will prompt a reduction in the post-retirement interest rate and this effectively allocates surplus to active members because of the resultant increase in active member liabilities. To preserve the spirit of the PFSA, the proper action in such a situation would seem to be to pay for the cost of funding this higher pension increase policy via a cash injection to the fund, so as not to diminish the surplus available for the initial pension inflation catch-up exercise and for topping up former member benefits to the statutory minimum. It is not clear that this was widely adopted.

4.5.1.4 In most cases it was not possible to tell whether or not a benefit improvement was being implemented, and so the changes in the post-retirement interest rate were taken as genuine changes in basis introduced by the actuary, and not a benefit improvement as contemplated in PGN205. Consequently, changes in the post-retirement interest rate are counted as a change in basis for the purposes of this analysis.

## 4.5.2 PENSIONER MORTALITY

4.5.2.1 The profit of R135m generated in the intervaluation period from pensioner mortality seems to indicate that the assumptions used at the previous valuation were adequate. However, mortality strains are slow to emerge and were usually not quantified. Only 75 funds of the 447 funds reported a pensioner mortality item; 31 of them reported a surplus from this source. Other pensioner mortality strains may have been too small to quantify and will have been counted under the miscellaneous item. In its press release,<sup>13</sup> ASSA notes that, with regard to improving pensioner mortality, “this trend has been well-documented overseas for some time” and then seems to extrapolate to “it is a more recent phenomenon here in South Africa.” The authors suggest that the local evidence is far from decisive.

4.5.2.2 In analysing South African annuitant data Dorrington & Tootla (2007) note that:

Comparison of population mortality rates produced by Dorrington, Moultrie & Timæus (2004) with the South African Life Tables 1984–86 (Central Statistical Service, 1987) and those produced by Dorrington (1998) suggest that there has been little decrease in population mortality of those over 65 between 1984–86 and 1996–2001 (even within the population groups).

They also recommend that if one has to project future improvements in mortality, one should use the UK rule of thumb of reducing by one year of age for every 20 years projected, because there are “too few data from which to decide a trend.” Further reasoning behind this recommendation is not given.

4.5.2.3 When commenting on a proposal to change the state pension age in the

---

13 ASSA, *supra*

UK, the Actuarial Profession (2006)<sup>14</sup> sets out the difficulties with the projection of life expectancy. With regard to the projection of future pensioner mortality rates it makes the point that “This is an almost impossible task as the level of uncertainty is too great.”

4.5.2.4 Irrespective of new diseases and medical improvements in the future, South African pensioners may experience a higher incidence of disease and risk than overseas pensioners. South Africa is a relatively violent society; the frequency of fatal road accidents is higher than overseas and diseases such as tuberculosis and HIV/AIDS are more prevalent. Although AIDS will have a relatively small effect at older ages, the effect is not nil. According to the ASSA AIDS model, in 2025, AIDS will account for 5,75% of deaths over age 60 and 2,92% of deaths over age 65. Further details are set out in Appendix B.

4.5.2.5 The extent to which speculation around future improvements in pensioner mortality should be allowed for in the valuation assumptions is, of course, a matter of professional opinion. One would assume that valuers would already have made allowance for such improvements in their previous assumptions. There appears to be nothing significant in the experience to indicate an abrupt improvement in pensioner mortality. Nevertheless, it can be said that valuers did on the whole act decisively (if not abruptly) in the matter of pensioner mortality.

4.5.2.6 Of the 286 funds where we (fairly readily) have the pensioner mortality assumptions for both the previous and the best-estimate valuations, only 69 left their pensioner-mortality assumptions unchanged. Almost without exception the assumptions at both valuations were based on standard overseas tables. No assumptions in the previous mortality basis made any explicit allowance for continuous future improvement other than might have been implicit in the standard table. For the best-estimate valuation 107 of the 286 funds introduced explicit allowance for future improvement ranging from 0,5% to 1% a year. Many of the assumptions in the previous valuation were based on very old tables and one assumes that valuers were happy to leave these unchanged for many years. The PFSAA seems to have provoked the body of valuers into an abrupt shift in the pensioner mortality assumption.

4.5.2.7 It is not clear to the authors that this quantum of shift was justified and, even if it were justified, it is unfortunate that the shift occurred just when it would have a significant negative effect on the distribution of surplus to former members.

4.5.2.8 A possible explanation is that valuers were previously happy to leave outmoded mortality assumptions in place because they were implicitly allowing for future mortality improvement via a reduction in the discount rate. PF117 then required a best estimate for each assumption separately. If this were the case, we should expect the changing of mortality assumptions to be accompanied by a relaxing of the discount rate, i.e. the overall strength of the basis would remain much the same. This is not supported by the first column of 197 funds in Table 2.

---

14 The Actuarial Profession. The response of the actuarial profession to the second report of the Pensions Commission: a new settlement for the twenty-first century. Paper 1: Commentary on the use of life expectancy data in the Pensions Commission Report, Submission as a response to the Pensions Commission 2nd Report, 2006

#### 4.5.3 THE REAL RATE OF RETURN

4.5.3.1 Actuaries have traditionally pointed out that, while the absolute levels of investment returns and salary inflation are quite variable over time, the difference or ‘gap’ is far more stable. On these grounds actuaries have been reluctant to change the gap in their assumptions.

4.5.3.2 As ASSA pointed out in its press release, long-bond yields fell, indicating the market view that long-term inflation had been brought under control; a positive development for DB funds where the liabilities are linked to inflation.

4.5.3.3 The existing bases produced an economic surplus of R342m.

4.5.3.4 There therefore seems little justification for narrowing the gap.

#### 4.5.4 BASIS INFLUENCED BY SURPLUS

Professional guidance<sup>15</sup> states that actuaries should be consistent with their reasoning between funds, notwithstanding that different funds could have different bases. The analysis of surplus (see Table 2) shows that the existence of a surplus influenced actuaries considerably when changing the assumptions for the valuation in terms of section 15B. The existence of surplus or deficit has not traditionally been a determining factor in the setting of actuarial assumptions.

#### 4.5.5 EXPERIENCE

4.5.5.1 According to conventional actuarial practice as encapsulated in the actuarial control cycle, the actuary will review the experience in the fund since the previous valuation. If the experience is credible, she/he will make changes to the valuation assumptions should the experience indicate deficiencies or excessive prudence. If the experience is not credible, the actuary will base any changes on the general experience of similar schemes. In terms of the actuarial control cycle, the monitoring of experience therefore plays an important role in the setting of assumptions. Table 4 summarises the experience since the previous valuation. Strains that the trustees of the funds had control over have been excluded, as these strains are likely to be once-off strains and are therefore not relevant to the setting of actuarial assumptions for the future. In Table 4 ‘experience’ combines the entries for economic surplus, demographic surplus, pensioner mortality and unallocated experience in Table 2. ‘Experience % of liabilities’ is the surplus arising from experience expressed as a percentage of the liability at the valuation in terms of section 15B before the change in basis. ‘Basis change % of liabilities’ is the overall change in basis expressed as a percentage of liabilities prior to the change. A positive percentage indicates an increase in reserves, a negative percentage a decrease.

4.5.5.2 The results in Table 4 are inexplicable in terms of the actuarial control cycle. In categories in which the actuarial basis was strong enough to generate surplus, actuaries tended to strengthen the basis, and where the basis generated deficits, actuaries were content to leave their assumptions more or less unchanged. Normally the principles underlying the actuarial control cycle would require the actuary to consider strengthening

---

15 ASSA. PGN205: Pension Funds Second Amendment Act, 2001, 2004

the basis if it were shown to be inadequate by the experience. Bases that generated surplus could be left unchanged or weakened if excessively strong.

4.5.5.3 The strengthening of the basis by an average of 16,1% over 194 funds looks particularly unusual. In a traditional valuation, a general increase of this magnitude would indicate a major structural change in the economy or in the demographics of the fund. Historically, such a change would usually have been phased in over a number of valuations. As discussed in previous sections, it is felt that claims for such a structural change cannot be justified.

Table 4. Change of basis relative to experience (R millions)

Experience generated	Surplus	Strain	Total
Number of funds	194	253	447
Liability	74 558	86 576	116 133
Experience	11 376	-7 002	4 374
Change in basis	-10 317	388	9 929
Experience: % of liability	17,1%	-8,1%	2,9%
Basis change: % of liability	16,1%	-0,5%	6,6%

4.5.5.4 Normally employers would not easily accept such large cost increases. The decoupling of reserving basis from funding basis meant, however, that the effect of these basis changes did not fully flow through to future-service costs.

#### 4.5.6 PROFESSIONAL GUIDANCE

Section 2.2 of PGN205<sup>16</sup> states that:

In determining appropriate valuation methods and assumptions and in recommending the types and amounts of contingency reserves to be held at the surplus apportionment date, a valuator will not necessarily reach the same conclusions for different funds. This is a consequence of the varied characteristics of retirement funds as well as the different apportionment dates and past practices on these funds. It is especially important, however, that the reasons given to support the valuator's conclusions are consistent between funds.

The results in Table 4 and Table A.1 call into question the consistency of the valutors' reasoning between funds. Whilst the point is not within the scope of this study, the authors noted that many valuation reports quoted PF117 verbatim. It is therefore possible that many valutors took the opportunity to increase reserves to the maximum allowed by PF117, probably on the understanding that any basis falling within the limits of PF117 was automatically reasonable. As discussed in section 2.5, the Board of Appeal, however, stressed the importance of other factors such as the financial history of the fund. One of the authors was initially embarrassed to find that one of his valuations had strengthened

16 ASSA, *supra*

by over 40% on the previous basis. Investigation showed, however, that this was a very unusual fund because of the degree of litigation involved with a consequent increase in expense and legal contingency reserves. It seems unlikely that so many of the funds with excessive strengthening would have similarly unusual circumstances.

#### 4.5.7 POST-VALUATION EXPERIENCE

4.5.7.1 Historically, actuaries took into account experience that occurred after the valuation date but before the valuation report was signed. This approach is entirely reasonable and is endorsed by the Board of Appeal.<sup>17</sup>

4.5.7.2 In the processing of the valuations in terms of section 15B there were unusually long delays. One of the reasons for this was that PF117 was issued only in 2004, towards the end of the three-year cycle of valuations arising after 7 December 2001. The period from 2005 to 2007, in which many of the valuation reports in terms of section 15B in the sample were issued, was a period of high real returns and it was apparent that the next valuation after the valuation in terms of section 15B would generally reveal considerable surplus, to which, at that stage, former members would no longer have a right. This was a further argument against the strengthening of valuation assumptions at the valuation in terms of section 15B. The results in Table 4 indicate, however, that this post-valuation experience was not generally taken into account by actuaries. One valuator did take the post-valuation experience into account for several schemes by placing a higher value on the assets than market value for the purpose of financial soundness. This was not carried through to the calculation of surplus for distribution however, which was based on market value. This was perhaps a questionable application of PF117 but, to be fair, few actuaries would be brave enough to distribute assets that the fund did not actually physically have at valuation date.

#### 4.5.8 FUNDING FOR STATUTORY MINIMUM BENEFITS

4.5.8.1 It has been suggested that the introduction of the statutory minimum benefit on withdrawal should result in a change to the valuation assumptions. The argument seems to be that the 'greater security' enjoyed by the statutory minimum benefits warrant discounting at a lower rate (corporate AA rates are suggested).

4.5.8.2 The extent to which the statutory minimum benefit exceeds the previous rule-based withdrawal benefit creates an additional liability. The valuator quantifies the value of this liability and shows it as an analysis-of-surplus item.

4.5.8.3 Section 14 A(1)(b) of the PFSAA allows the statutory minimum benefit to be reduced pro rata if there are insufficient assets in the case of a liquidation. This belies the 'greater security' argument and there seems to be no justification for changing the valuation basis on account of the introduction of the statutory minimum benefits over and above the adjustment set out in ¶4.5.8.2 above. In particular, the introduction of the statutory basis for minimum benefits should not result in a change to the real discount rate used in the valuation basis.

---

<sup>17</sup> supra

## 5. COMMUNICATION

5.1 Communication is considered a core professional competency. The authors find some of the communication practices around the surplus distribution to be questionable and it is worth recording some instances.

5.2 Some valuers effectively claimed that a best-estimate valuation basis with no margins for prudence and no contingency reserves was financially sound. The authors question whether the trustees were fully informed of the levels of risk associated with such a claim.

5.3 Many best-estimate liability valuations on the other hand were unchanged or strengthened since the previous valuation and so probably contained implicit margins (see Table 1). The question arises how these were represented to trustees. If they were represented as having no margins for prudence, the trustees would have felt free, indeed obliged, to further strengthen reserves. This suggests good faith on the part of the trustees, but possibly not on the part of the actuary.

5.4 ASSA has claimed in a publication intended to be distributed free of charge as a service to the public, that one of the main reasons for the reduction in surplus is the creation of contingency reserves.<sup>18</sup> As discussed in ¶2.3.6, most explicit contingencies should already have been identified and reserved for in the previous valuation, so it is difficult to understand how the creation of contingency reserves could be a major reason for the reduction in surplus.

5.5 ASSA's communications with the press are discussed in ¶2.4.3.5 and section 4.4. From these discussions, it can be questioned whether these could be considered examples of good communication.

## 6. RECONCILING TO THE R80BN ESTIMATE

6.1 The original estimate of overall surplus was R80bn. Over ten years after the promulgation of the PFSAA only R47,6bn surplus had been distributed and it seems unlikely that the ultimate surplus distribution will reach the R80bn mark.

6.2 According to Mabotja<sup>19</sup> the estimate of R80bn surplus was made by the Chief Actuary as follows: allowing for growth in assets and additional contributions, the R352bn assets reported in the Registrar's annual report at the end of 1996 will have grown to at least R400bn by 1998. Surplus of 20% of assets was assumed, giving an estimated surplus of R80bn. This estimate implicitly assumes that DC funds will also have a surplus of 20%.

---

18 ASSA 'ndaba No. 1, 2004

19 Mabotja, *supra*



6.3 Of the funds included in the estimate referred to by Mabotja, many may have terminated, many DB funds converted to DC, distributing surplus in the process, and many funds would have distributed surplus via benefit improvements, pension increases and contribution holidays. All of this would have happened before the promulgation of the PFSAA. In the sample of 447 funds the amount of surplus used in such controllable strains just before the PFSAA was quantified at R11,9bn (Table 3).

6.4 Based on available data in the sample, the surplus at the valuation prior to the promulgation of the PFSAA amounted to approximately 13% of the actuarial value of assets. This would indicate that the estimate of 20% surplus is possibly an overestimate, at least for DB funds. It is not clear whether this 13% factor can be applied to DC funds, or to the DB funds for which data are not available.

6.5 For the 447 DB schemes in the sample the surplus at the valuation preceding the valuation in terms of section 15B, accumulated with interest to the valuation in terms of section 15B, amounted to R20,6bn. There was additional surplus of R4,4bn resulting from experience. The surplus actually revealed at valuations in terms of section 15B amounted to R4,8bn. The main reasons for this reduction in surplus were the controllable strains of R9,7bn and R10bn due to changes in actuarial basis.

6.6 Whilst we might surmise that the balance of the DB funds follow a pattern similar to the above, the estimation of the amount of surplus in the DC funds presents particular challenges, not least because data may not be in the public domain for valuation-exempt funds. Furthermore it is not immediately clear what percentage of the combined DC assets would reasonably approximate the surplus in these funds. The authors conclude that it will not be possible to produce a detailed reconciliation to the figure of R80bn.

## 7. CONCLUDING REMARKS

7.1 A sample of 447 surplus valuation reports for South African DB funds was examined. This probably constitutes at least 40% to 50% of the universe of such reports. There may be some bias in the sample as most of the reports were completed earlier than average and viable analysis-of-surplus information was available for these funds. It is not clear, though, what the effect of such bias, if any, might be. In general the authors consider that the sample is representative of the universe of such funds, although further research may be needed to establish to what extent the results obtained can be extrapolated.

7.2 During the run-up to the PFSAA, R11,9bn of surplus was distributed from the 447 funds in the sample by way of benefit improvements, pension increases in excess of the funded rate of increase, the setting-up of employer surplus accounts and contribution holidays. It is probable that these changes were partly motivated by the impending constraints of the PFSAA. One may speculate that this figure would be considerably

increased if one extrapolated to all such funds and included those DB funds that converted to DC in this prior period, distributing surplus in the process.

7.3 Strengthening of the valuation basis in the sample used up a net R10bn of surplus. If we consider only those funds where the basis was strengthened, this figure increases to R13bn. This strengthening was not required nor encouraged by the legislation and it was not, in general, supported by the experience of the funds. Indeed, there seems, in general, to be a perverse relationship between the experience of the funds and the change of bases. In particular, where the experience generated ample surpluses, indicating that the previous basis was sufficiently prudent, the basis was often further strengthened (an average of 16,1%).

7.4 The effects set out in ¶¶7.2 and 7.3 have been to reduce the surplus available to top up former member and pensioner benefits to the statutory minimum and are thus contrary to the spirit of the PFSAA. Former members are particularly vulnerable as their statutory right to surplus expires following the surplus distribution in terms of section 15B. In terms of professional standards the “Actuarial Profession has an obligation to serve the public interest.”<sup>20</sup> It is questionable whether this reduction of surplus distribution to former members is in the public interest.

7.5 There are strong indications that the former members have been adversely affected by the unequal treatment in the method of calculation of their minimum benefits in comparison to active members. Further research will be needed to both confirm and quantify this. As mentioned in ¶2.7.5 it may also be fruitful to research the effect of the margins implicit in the prescription of the statutory minimum benefit.

7.6 Some of the methodologies of PF117 are called into question. In particular, the no-deficit clause seems to have no actuarial justification at all, but leads to a number of problems. In the first place it decouples the funding basis from the reserving basis. At one end of the spectrum, one can have a scheme both funded and reserved on a best-estimate basis. In such a case there is a 50% risk that assets will be insufficient for accrued benefits and a 50% risk that the contribution rate will be insufficient to fund for future benefits. Before this is adopted as an acceptable method, it is essential that research be done, perhaps using stochastic modelling, to determine the levels of risk inherent in this approach. At the other end of the spectrum, a fund may be strongly reserved (to the full extent allowed by PF117), but still only be funding on a best-estimate basis. Normally an employer would resist increases in cost if a strengthened basis is proposed and this forms a natural check on any excessive strengthening of the basis. This check has now been removed because on the best-estimate funding basis the employer may even be contributing less than before whilst the increasing of the reserves served to deny surplus to the former members. For this reason, the no-deficit clause has probably encouraged

---

<sup>20</sup> Faculty and Institute of Actuaries, 1999, *supra*

the strengthening of bases noted in ¶7.3 above. These problems with the no-deficit clause were exacerbated by the diminished use of investment reserves, particularly as these could be reclassified as part of the solvency reserve (which is subject to the no-deficit clause).

7.7 Whilst outside the scope of the investigation, three questionable practices were noted that warrant further research:

- the reduction of accrued benefits;
- benefit improvements funded from surplus after the promulgation of the PFSAA but before the allocation of surplus in terms of section 15B of the PFSAA; and
- the possible adoption of pension increase policies in excess of the allowance in the funding basis after the promulgation of the PFSAA but before the allocation of surplus in terms of section 15B of the PFSAA.

7.8 Given the various difficulties with the surplus process outlined in this paper, one must ask whether the profession has communicated with trustees, the public and former members with the thoroughness and transparency that its professional standards would require.

7.9 The actuarial profession's response to the PFSAA may represent something of a credibility crisis for the profession. Andrew (2004) perhaps had some insight into this possibility:

In the conversion process, the reputation of the actuarial profession in South Africa has suffered damage. Trade-union representatives do not trust the actuary to treat members fairly; on the contrary, they expect the actuary to act in concert with the employer.

The actuarial profession will have to work hard to overcome these negative expectations. The Pension Funds Second Amendment Act, 2001, will produce a considerable volume of actuarial work over the next few years. The legislation has given the profession a second chance. It must do it right this time.

The profession must ensure that the surplus apportionment is conducted within the spirit of the Act as well as within the guidelines drawn up by ASSA.

Actuaries must now be seen to be impartial, to be managing the conflicts of interest, and to be communicating better.

It is perhaps fair to say that the true character of a profession is revealed in its response to challenging situations.

## ACKNOWLEDGEMENTS

The authors acknowledge the help of the Registrar of Pension Funds who provided the valuation reports in terms of PAIA.

## REFERENCES

- Andrew, J.P. (1998). Equity in the distribution of surplus in a retirement fund, *Transactions of the Actuarial Society of South Africa* **12**(1), 85–102
- Andrew, J.P. (2004). The conversion of members' rights in South African retirement funds from defined benefits to defined contributions and the statutory apportionment of the resulting actuarial surplus, *South African Actuarial Journal* **4**, 1–62
- Andrew, J.P. (unpublished). Actuarial practice and conduct with regard to transfers, particularly the transfer of actuarial surplus, ASSA convention, 2011
- Dorrington, R.E. & Tootla, S. (2007). South African annuitant standard mortality tables 1996–2000 (SAIML98 and SAIFL98), *South African Actuarial Journal* **7**, 161–84
- Gluckman, D. & Kamionsky, T. (1997). Retirement fund conversions – challenges and risks, *Transactions of the Actuarial Society of South Africa* **9**(3), 248–308
- Lowther, M. (2011). Regulation 28: New challenges for trustees – and the registrar! *Pensions World South Africa* **14**(2), 6–8
- Milburn-Pyle, P. & Lennox, R. (1990). Ownership of fund surpluses, *Transactions of the Actuarial Society of South Africa* **8**(1), 10–82

## APPENDIX A

### COMPARISONS OF VALUATION BASES AND STATUTORY MINIMUM BENEFITS

Table A.1 shows the overall strengthening or weakening of the surplus valuation basis compared with that of the previous valuation. The different columns represent the same categories as those set out in Table 1. In the column ‘% strengthening of overall basis’ a negative percentage indicates a weaker basis. In the column headed ‘unchanged’ asterisks indicate that the liability basis was unchanged or stronger but the release of contingency reserves held at the previous valuation (such data reserves) led to an overall weakening of the basis.

Table A.1. Strengthening or weakening of the surplus valuation basis

% strengthening of overall basis	Best Estimate				Total
	Before 1/9/2004	unchanged	weaker	stronger	
–40% to –50%		1*	1		2
–30% to –40%			1		1
–20% to –30%	1		1		2
–10% to –20%	1	1*	18		20
0% to –10%	37	14*	42	4*	97
Sub-total	39	16	63	4	122
0% to 10%	18	14	33	92	157
10% to 20%	8	4	18	68	98
20% to 30%	5	1	2	36	44
30% to 40%			1	14	15
40% to 50%	1			5	6
50% to 60%			1	2	3
60% to 70%	1			1	2
Sub-total	33	19	55	218	325
Total	72	35	118	222	447

Table A.2 sets out a comparison of the statutory minimum benefits of active and former members. The calculations are based on an accrued pension of R1000 a year. The actuary places a value of, say, 11 on the pension at normal retirement date, which is taken as 31 December 2004. To simplify the calculation, this is also taken as the date of the surplus apportionment. The calculation of the benefit of the former member uses the proxy returns provided by the FSB for the period between date of exit and the surplus apportionment date.

Table A.2. Comparison of statutory benefits of active and former members

Date of exit	FSB Returns Index	CPI	ILG – 0.95%	t	(1+C) <sup>t</sup>
31/12/2001	4,285.21	107.2	4.05%	3.000	1.2014
31/01/2002	4,146.67	109.0	3.79%	2.917	1.1806
28/02/2002	4,206.20	110.2	3.54%	2.833	1.1667
31/03/2002	4,261.53	111.3	3.43%	2.750	1.1542
30/04/2002	4,375.91	113.1	3.18%	2.667	1.1349
31/05/2002	4,408.88	113.9	3.15%	2.583	1.1260
30/06/2002	4,337.33	114.7	3.13%	2.500	1.1172
31/07/2002	4,095.59	116.3	3.13%	2.417	1.1010
31/08/2002	4,220.78	116.9	3.07%	2.333	1.0944
30/09/2002	4,189.34	118.1	2.78%	2.250	1.0824
31/10/2002	4,210.30	119.9	2.87%	2.167	1.0653
30/11/2002	4,322.28	120.3	3.04%	2.083	1.0608
31/12/2002	4,221.67	120.5	3.03%	2.000	1.0582
31/01/2003	4,152.39	121.6	3.03%	1.917	1.0478
28/02/2003	4,021.43	121.5	3.00%	1.833	1.0477
31/03/2003	3,838.96	122.7	2.99%	1.750	1.0366
30/04/2003	3,839.63	123.1	2.98%	1.667	1.0324
31/05/2003	4,224.94	122.8	2.98%	1.583	1.0341
30/06/2003	4,228.68	122.4	3.03%	1.500	1.0366
31/07/2003	4,371.09	122.4	3.05%	1.417	1.0357
31/08/2003	4,468.45	122.9	3.02%	1.333	1.0307
30/09/2003	4,433.38	122.5	3.02%	1.250	1.0332
31/10/2003	4,702.51	121.7	3.01%	1.167	1.0391
30/11/2003	4,758.08	120.8	3.00%	1.083	1.0460
31/12/2003	4,999.68	120.9	3.01%	1.000	1.0443
31/01/2004	5,164.93	121.8	3.00%	0.917	1.0357
29/02/2004	5,144.88	122.4	3.00%	0.833	1.0297
31/03/2004	5,157.81	123.2	2.94%	0.750	1.0222
30/04/2004	5,164.73	123.4	2.82%	0.667	1.0197
31/05/2004	5,140.24	123.5	2.83%	0.583	1.0180
30/06/2004	5,102.91	123.9	2.88%	0.500	1.0139
31/07/2004	5,153.88	124.3	2.88%	0.417	1.0098
31/08/2004	5,465.07	124.1	2.82%	0.333	1.0106
30/09/2004	5,694.62	124.1	2.82%	0.250	1.0098
31/10/2004	5,817.75	124.6	2.82%	0.167	1.0049
30/11/2004	6,163.35	125.3	2.82%	0.083	0.9984
31/12/2004	6,340.16	125.0	2.81%		

1000	11	(1+d) <sup>1</sup>	Former Members	Active Members	Diff
1,201	13,215	1.4795	8,932	9,765	9.33%
1,181	12,986	1.5290	8,493	9,869	16.20%
1,167	12,834	1.5073	8,514	9,967	17.07%
1,154	12,697	1.4878	8,534	10,026	17.48%
1,135	12,484	1.4489	8,617	10,119	17.44%
1,126	12,386	1.4380	8,613	10,153	17.88%
1,117	12,290	1.4618	8,407	10,184	21.13%
1,101	12,111	1.5480	7,823	10,210	30.52%
1,094	12,038	1.5021	8,014	10,251	27.90%
1,082	11,906	1.5134	7,867	10,342	31.45%
1,065	11,718	1.5059	7,781	10,346	32.96%
1,061	11,669	1.4669	7,955	10,335	29.91%
1,058	11,640	1.5018	7,751	10,363	33.70%
1,048	11,525	1.5269	7,548	10,388	37.62%
1,048	11,525	1.5766	7,310	10,420	42.54%
1,037	11,403	1.6515	6,905	10,447	51.31%
1,032	11,357	1.6512	6,878	10,475	52.30%
1,034	11,375	1.5007	7,580	10,500	38.53%
1,037	11,403	1.4993	7,605	10,518	38.31%
1,036	11,393	1.4505	7,855	10,542	34.21%
1,031	11,337	1.4189	7,990	10,572	32.31%
1,033	11,365	1.4301	7,947	10,598	33.36%
1,039	11,430	1.3483	8,478	10,626	25.34%
1,046	11,506	1.3325	8,635	10,653	23.38%
1,044	11,487	1.2681	9,058	10,679	17.89%
1,036	11,392	1.2275	9,281	10,706	15.36%
1,030	11,327	1.2323	9,192	10,732	16.76%
1,022	11,244	1.2292	9,147	10,764	17.67%
1,020	11,217	1.2276	9,137	10,798	18.17%
1,018	11,198	1.2334	9,079	10,822	19.20%
1,014	11,153	1.2425	8,977	10,845	20.81%
1,010	11,108	1.2302	9,030	10,871	20.39%
1,011	11,117	1.1601	9,582	10,899	13.74%
1,010	11,107	1.1134	9,976	10,924	9.50%
1,005	11,054	1.0898	10,143	10,949	7.95%
998	10,983	1.0287	10,676	10,975	2.79%

**APPENDIX B****AIDS MORTALITY**

Table B.1 shows the number of deaths, by AIDS and by other causes, during the year starting 1 July 2025 for ages 60 and over according to the ASSA AIDS model. The table shows that, on this basis, AIDS will account for 5,75% of deaths over age 60 and 2,92% of deaths over age 65.

Table B.1 Proportion of deaths from AIDS over the year starting 1 July 2025

Age	Male + Female			% AIDS
	ALL	AIDS	OTHER	
60	9972	2506	7465	25,13%
61	9731	2043	7688	20,99%
62	9763	1818	7945	18,62%
63	9823	1597	8226	16,26%
64	9895	1391	8504	14,06%
65	9983	1203	8780	12,05%
66	10041	1030	9011	10,26%
67	10085	873	9212	8,65%
68	10098	733	9366	7,26%
69	10654	608	10046	5,71%
70	11099	498	10600	4,49%
71	10898	405	10492	3,72%
72	10687	327	10359	3,06%
73	10463	263	10200	2,51%
74	10528	209	10320	1,98%
75	10488	164	10325	1,56%
76	10037	126	9911	1,26%
77	9534	95	9439	0,99%
78	8995	69	8925	0,77%
79	8390	49	8341	0,59%
80	7774	34	7740	0,43%
81	7253	23	7230	0,31%
82	6907	15	6892	0,21%
83	6692	9	6683	0,14%
84	6535	6	6529	0,09%
85	6291	3	6287	0,05%
86	5920	2	5919	0,03%
87	5404	1	5403	0,02%
88	4778	0	4777	0,01%
89	4129	0	4129	0,00%
90	16987	0	16987	0,00%
<b>Total</b>	<b>279832</b>	<b>16100</b>		<b>5,75%</b>
<b>Over age 65</b>	<b>230648</b>	<b>6744</b>		<b>2,92%</b>