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To all self-administered funds, fund administrators, valuers, and administering insurers of funds exempted in terms of section 2(3)(a) of the Pension Funds Act, 1956

CIRCULAR PF NO. 117

VALUATION AT THE SURPLUS APPORTIONMENT DATE TO DETERMINE THE AMOUNT TO BE APPORTIONED BETWEEN STAKEHOLDERS, THE ESTABLISHMENT OF CONTINGENCY RESERVE ACCOUNTS AND CHANGES OF METHOD OR ASSUMPTIONS

INTRODUCTION

This Circular sets out the standard for valuations to determine the actuarial surplus at the surplus apportionment date. A valuation which adheres to this should normally be acceptable.

Details of any deviation from this standard and its financial impact must be included in the valuation report and any summary report sent to stakeholders. Such details should include a set of calculations in terms of the standard.

In this circular, the terms actuary and valuator are used interchangeably.

1. "Best estimate" assumptions

"Best estimate" assumptions should be used in the determination of the accrued liabilities and should be motivated with reference to the experience of the fund or similar funds or to statistics published or endorsed for use by ASSA.

- 1.1. Subject to the exception in 4.1 below, the actuarial assumptions should be "best-estimate assumptions":

Board Members: Dr Cyrus Rustonjee (Chairperson) Mr Abel Sithole (Deputy Chairperson) Mr Brian Hawksworth Ms Jabu Mogadime
Ms Nosipho Molope Prof P J Sutherland Ms Louisa Mojela Ms Hilary Wilton
Executive Officer: Mr J van Rooyen



A “best-estimate assumption” means an assumption that:

- (a) is realistic;
- (b) depends on the nature of the business concerned; and
- (c) is guided by past experience, as modified by any knowledge or expectation of the future, including events, such as changes in tax or legislation, which impact the expected experience of the fund.

1.2. No deliberate margins of conservatism should be included in the assumptions

1.3. The assumptions should be motivated by reference to any of the following:

- the experience of the fund, taking into account of the size of the fund and underlying trends in that experience where the actuary deems it appropriate to do so;
- statistical evidence relating to
 - funds in general, or
 - relevant published annuitant or in-service mortality or morbidity, including the effect of HIV/AIDS, or
 - an investigation performed within a firm of valuers in respect of funds advised by that firmwhere that evidence may relate to demographic items or to economic items such as the equity premium; or
- yields on classes of government or corporate bonds which, in terms of the actuarial method used by the valuator, determine the discount or inflation rates assumed at the valuation date.

The valuator should include the motivation in the report, and, should make a copy of any investigation used in this motivation available to the Registrar, upon request.

Published mortality and morbidity investigations will include investigations published by ASSA, the Institute, Faculty and Society of Actuaries, and any statutory or industry body in South Africa or in other jurisdictions where the experience may be similar to that in South Africa or may be adjusted to be so similar.

1.4. The use of “best-estimate” assumptions may result in a strengthening of the assumptions as used at the previous statutory actuarial valuation. This is acceptable provided it has been motivated as set out above.

2. Minimum benefits

- 2.1. In the valuation provision must be made for minimum benefits for which the fund will in future become liable in respect of existing in-service members and pensioners, subject to the adjustment of the minimum pension increase at the surplus apportionment date if there is insufficient actuarial surplus to permit both former members' benefits to be topped up to minimum levels and to permit the full minimum pension increase.
- 2.2. The valuator should take account of these minimum benefits in the valuation of the accrued liabilities subject to the following constraints:
 - 2.2.1. Minimum benefits will apply from 12 months after the surplus apportionment date in respect of active members and from the surplus apportionment date, or earlier, in respect of pensioners.
 - 2.2.2. As detailed in PF Circular No. 116, the board may grant a normal pension increase in terms of the pension increase policy at the surplus apportionment date prior to the surplus apportionment, but may only
 - 2.2.2.1. grant the statutory minimum pension increase at the surplus apportionment date as part of the application of section 15B(5)(b) and
 - 2.2.2.2. establish a contingency reserve account for any excess of the notional pensioner accumulation determined in terms of section 14B(4)(b)(i) over the pensioner liability, determined as the higher of the accrued liability on best-estimate assumptions and the discontinuance matching approach, if relevant, as part of the equitable apportionment in terms of section 15B(5)(c).
- 2.3. If at the surplus apportionment date the fund is being liquidated or is converting, and the fair value of assets is insufficient to provide at least minimum benefits to the active members and purchase equivalent pensions for the pensioners and deferred pensioners, the valuator must take account of the provisions of section 14A(1)(b) or (c), respectively. "Equivalent pensions" means pensions payable at the same frequency, of the same amount, including the same guarantees and contingent pension rights to surviving spouses or dependants, and making provision for the same level of increases in future.

This will be demonstrated, in the case of each pension, by the price of the corresponding annuity policy, less commissions, being at least equal to the

value of the accrued liability in the fund in respect of the pension immediately prior to liquidation or conversion.

3. Changes of funding method

If a funding method is changed from that used at the previous statutory actuarial valuation, such as a change from valuing death benefits using a current cost method to valuing death benefits using an accrued benefits method, the valuator should motivate the change in the report sent to the Registrar.

4. Establishment of contingency reserve accounts

The existence of any contingency reserve accounts prior to the surplus apportionment date does not mean that such accounts may automatically continue to exist as from the surplus apportionment date. However the board may establish the following contingency reserve accounts before the surplus apportionment provided that the need for such account is fully justified and the establishment of such contingency reserve accounts does not result in a deficit:

4.1. A solvency reserve

4.1.1. The board may establish a solvency reserve, reflecting provision for such amount as will represent the difference between the value of the accrued liabilities determined on the "best estimate" basis and an amount determined on a solvency basis as set out in the Annexure, if the latter is higher than the former.

4.1.2. The combination of

- accrued liabilities on "best estimate assumptions" and
 - a solvency reserve which is determined assuming a discontinuance matching strategy as set out in the Annexure and which therefore implicitly incorporates a reasonable measure of prudence
- will result in the reporting of an actuarial surplus on a basis consistent with international practice.

4.1.3. Funding to this level of prudence is desirable.

4.1.4. To the extent that this solvency reserve is implemented, a measure of conservatism is introduced. The board, with the assistance of the actuary, must evaluate the reasonability of establishing other contingency reserve accounts against the amount set aside in this solvency reserve in order to preserve a balance between the interests of existing members, the employer and former members. In particular, the actuary must deduct the value of any investment reserve, or difference between the fair value and the actuarial value of assets, from the amount in the solvency reserve, subject to not reducing the solvency reserve below zero.

4.2. A contingency reserve account to hold the estimated expenses of the surplus apportionment exercise

The board, acting on expert advice, may make a reasonable estimate of the expenses of surplus apportionment and set this aside in a contingency reserve account.

4.3. A data reserve

The board may establish a contingency reserve account to make provision for data errors to an extent which the valuator deems reasonable after assessing the quality of the data submitted for the valuation. The valuator must justify the balance to be credited to the reserve.

4.4. A risk reserve

A risk reserve may be established at the surplus apportionment date only if the fund carries all or part of the death and disability risks and provided the benefit is paid for on a current cost basis and has not been funded for in the liabilities of the fund.

The amount of the reserve may represent the margins and capital adequacy requirement permitted to an insurer in respect of board notices issued by the Registrar of Long-term Insurance read with PGN104 issued by the Actuarial Society of South Africa.

At the time of writing these are:

Mortality: 7,5% improvement of mortality in respect of pensioners
and
7,5% deterioration in mortality in respect of active members
plus
45p/√n,

Disability: 10% deterioration in the incidence of disability
plus

$$65p/\sqrt{n}$$

- where n = number of lives which are subject to self-insurance of part or all of their benefit
- p = annual risk premium or expected strain, net of reinsurance

After the surplus apportionment date, the fund may maintain a risk reserve financed by contributions, defined specifically in the rules for this purpose, frequently being the difference between a fixed percentage of payroll and past actual insurance premiums, even if the death and disability benefits are fully insured.

4.5. A processing error reserve

Processing errors can include provision for mismatching and for timing differences in the actual investment or disinvestment of moneys from the times when they are deemed to have occurred in the calculation of benefits or the accrual of investment returns.

The magnitude of the reserve must be motivated with reference to the past experience of the fund or to a statistical model which is relevant to the fund. In the case of defined contribution liabilities, a reserve of up to 2% of the value of those liabilities is normally acceptable provided it is properly justified.

4.6. A contribution reserve (only where a prospective benefits funding method has been used, the employer contribution is defined in the rules, or stakeholders agreed prior to 7 December 2001 to stabilise the future contribution rate in a defined benefit fund at a particular level)

4.6.1. The valuator may set up a contingency reserve account equal to the present value of future service benefits less the present value of future contributions under the following circumstances:

4.6.1.1. the fund has consistently permitted only such actuarial surplus to be used as is revealed in terms of a prospective benefits funding method (as defined in GN26), or the fund offers defined benefits but has fixed contribution rates by member and employer defined in the rules, or the stakeholders agreed prior to 7 December 2001 that the employer contribution rate would be fixed at a particular level; and (in respect of any of these conditions)

4.6.1.2. the contribution rate paid by members and the employer, combined, is sufficient to secure the total service benefits for the average new entrant using “best estimate assumptions”, in other words, the contribution rate is not being subsidised

by actuarial surplus accumulated in the past.

4.6.2. Where the contribution rate paid by members and the employer, combined, is not sufficient to secure the total service benefits for the average new entrant using “best-estimate assumptions”, but one of the conditions in 4.6.1.1. is satisfied, the valuator may establish a contingency reserve account equal to the present value of future service benefits less the present value of future service contributions at the contribution rate that would be required to secure the total service benefits for the average new entrant using “best-estimate assumptions”.

4.6.3. If the fund does not have any new entrants, the actuary may assume that the average new entrant is aged 30.

4.7. Actuary to certify appropriateness of the balances in the contingency reserve accounts

The valuator must be satisfied that

4.7.1 the balance in any contingency reserve account is not greater than the provision that is reasonably required in terms of the contingency in respect of which account has been established, and

4.7.2 bearing in mind the observations in 4.1.4., the overall amount set aside in contingency reserve accounts is not unreasonable.

The valuator should certify this as part of the valuation report.

5. Contingency reserve accounts established after the surplus apportionment date

After the surplus apportionment date, the board of the fund may establish contingency reserve accounts to address future contingencies. These will be funded out of future contributions or surplus allocated for the benefit of existing members or the employer in the apportionment scheme approved by the Registrar in terms of section 15B.

6. Financial impact of each major change of assumption

The financial impact of each major change of assumption, or change in reserve account, from those used in the last statutory valuation must be reported to the Registrar and stakeholders.

6.1. When submitting the valuation report as at the surplus apportionment date, the valuator must include a reconciliation showing the financial effect of changes of method, assumptions, and basis used to determine contingency reserve account balances, from those applied at the previous statutory actuarial valuation:

6.1.1. The valuator must first determine the valuation result using the method and assumptions and reserve account methodology applied in the statutory actuarial valuation prior to the surplus apportionment

date.

- 6.1.2. Then the valuator must quantify the effect on the actuarial surplus of each major change of assumption, method, or basis upon which contingency reserve account balances have been determined and show this separately in the reconciliation. In the case of small funds, the Registrar will accept an approximate breakdown by item.
- 6.1.3. The actuarial surplus revealed in 6.1.1, together with the changes shown in 6.1.2. should sum to the actuarial surplus revealed in this valuation, after changes of method or assumptions and after the determination of contingency reserve account balances.
- 6.1.4. As stated in the Introduction to this note, if a basis used to value the fund is not the standard basis, then a valuation conducted on the standard basis should be conducted and should be an interim step between bases 6.1.1 and 6.1.2 above

REGISTRAR OF PENSION FUNDS

APPENDIX: DETERMINATION OF SOLVENCY RESERVE THAT WILL BE APPROVED BY THE REGISTRAR

A1. Determination of the solvency and investment reserve

The following method of determining an investment reserve, IR, and a solvency reserve, SR, is the standard and is acceptable: .

$$IR = FV_{\text{assets}} - AV_{\text{assets}}$$

$$SR_1 = AL_1 - AL$$

$$SR = \text{such amount as is determined by the board on the advice of the actuary, provided}$$

$$SR \geq 0,$$

$$SR \leq SR_1 - IR \text{ (that is, according to the matched gilt strategy set out in A2),}$$

or an amount determined using stochastic modelling or risk resilience testing, set out in A3 and A4 respectively,

and

$$(FV_{\text{assets}} - IR) \geq (AL + SR + \sum_i C_i)$$

SR could be determined as an arbitrary amount less than or equal to the lower of $(SR_1 - IR)$ and $(FV_{\text{assets}} - IR - AL - \sum_i C_i)$, or an amount in terms of one of the other techniques.

Note that $(SR_1 - IR)$ contains a margin of conservatism as most funds will invest partially in equities and past experience shows that there is, over the longer term, an equity premium. The size of $\sum_i C_i$ should be taken into account when determining SR, or vice versa, so as to avoid an overly conservative approach.

and, ignoring zero terms

Actuarial surplus = $FV_{\text{assets}} - IR - SR - AL - \sum_i C_i$, whether the fund is a defined benefit or a defined contribution fund where

AL is the accrued liabilities determined by the actuary in terms of Regulation 15 for purposes of the statutory actuarial valuation using “best-estimate” assumptions

AL₁ is the accrued liabilities determined by the actuary using the “matched investment” strategy as set out below.

FV_{assets} = Fair value of the assets, as determined by methods set out in South African Standards of Accounting Practice.

Where an asset is neither listed nor a policy of insurance, the valuator may accept the value placed on the asset by the board of the fund as confirmed by the auditor.

Where an asset is a policy of insurance, the valuator may accept the value placed on the policy by the insurer, subject to any qualification with regard to any non-vested bonus in terms of PGN201.

AV_{assets} = Actuarial value of assets, determined in terms of generally accepted actuarial practice.

Where this method differs from the method used at the previous statutory actuarial valuation, the actuary must motivate the change.

The method and the assumptions must be consistent with the method and assumptions used to determine AL.

$\sum_i C_i$ is the sum of the balances in all reserve accounts other than the solvency reserve account and the investment reserve account, where these contingency reserve accounts must satisfy

$$\sum_i C_i \leq AV_{\text{assets}} - AL - SR$$

In other words, the establishment of contingency reserve accounts and the solvency reserve cannot put a fund into deficit.

A2. Determination of AL₁ using a discontinuance matched approach

It is accepted that in many funds it may not be possible to fully match the liabilities with a combination of cash and bonds issued by Government. Similarly, account must be taken of the cost to maintain such a strategy. A reduction of up to 0,5% per annum in the discount rates set out in the valuation of AL₁ where the qualification is stated “adjusted for the reasonable cost of implementing and maintaining an investment strategy of matching such assets to the liabilities of the fund”, would be acceptable.

Where reference is made to mortality and morbidity assumptions as used by insurers, the actuary may motivate the appropriateness of rates used in the determination of AL₁ by reference to quotations from insurers or material published by the Financial Services Board or material published by the Actuarial Society of South Africa.

The adjusted accrued liabilities, AL_1 , should be valued using the following assumptions:

- (a) In respect of members in service:
 - (i) a discount rate before retirement equal to the current yield on fixed interest gilts adjusted for tax (taking into account the matched investment strategy);
 - (ii) the real salary increase assumptions used by the actuary in the current statutory valuation (which will include allowance for merit and promotional salary increases) plus price inflation (assumed to be the difference between the current yield on fixed interest gilts and that available on index linked gilts) provided that the current yield on fixed interest gilts exceeds the salary increase assumption inclusive of price inflation and any allowance for merit and promotional increases by at least 1% above age 40.
 - (iii) if, and only if, the actuary has used mortality and morbidity decrements in the current statutory valuation for active members' benefits, then pre-retirement mortality and morbidity assumptions generally used by insurers for non-profit policies in respect of employed lives, including any assumed allowance for future expected changes therein over the remaining working lifetime of members, may be used in calculating the liability for the purposes of the solvency reserve;
 - (iv) other demographic and family statistics as used by the actuary in the current statutory valuation; and
 - (v) post-retirement assumptions as set out below in respect of pensioners;plus
- (b) The actuarial liability in respect of pensioners, determined using:
 - (i) a discount rate after retirement equal to the current yield on fixed interest gilts;
 - (ii) pension increases in terms of the pension increase policy adopted by the board: Provided that, where the policy aims to grant increases equal to 100% of the increase in the consumer price index the allowance for pension increases shall not exceed the difference between the current yield on fixed interest gilts and that available on index linked gilts; and where the policy aims to grant increases lower than 100% of the increase in the consumer price index, the allowance for pension increases shall be the price inflation determined as above and then multiplied by the actual targeted percentage;
 - (iii) mortality assumptions generally used by insurers for non-profit annuity policies in respect of pension fund annuitants, including any assumed

allowance for future expected changes therein over the remaining lifetime of pensioners;

(iv) other demographic and family statistics as used by the actuary in the current statutory valuation; and

(v) allowance for the expenses of the payment of pensions;

plus

(c) The actuarial liability in respect of deferred pensioners, determined using:

(i) a discount rate before retirement equal to the current yield on fixed interest gilts adjusted for tax (taking into account the matched investment strategy);

(ii) pension increases (both before and after retirement) in terms of the pension increase policy adopted by the board: Provided that, where the policy aims to grant increases equal 100% of the increase in CPI (whether or not such increases are subject to affordability) the allowance for pension increases shall be the price inflation assumed to be the difference between the current yield on fixed interest gilts and that available on index linked gilts; where the policy aims to grant increases other than 100% of the increase in CPI, the allowance for pension increases shall be the price inflation determined as above and then multiplied by the actual targeted percentage;

(iii) if, and only if, the actuary has used mortality and morbidity decrements for deferred pensioners in the current statutory valuation, then pre-retirement mortality and morbidity assumptions generally used by insurers for non-profit policies in respect of employed lives, including any assumed allowance for future expected changes therein over the remaining working lifetime of members, may be used in calculating the liability for the purposes of the solvency reserve; and

(iv) post-retirement assumptions as set out above in respect of pensioners.

Instead of the calculated cost of the liabilities in respect of pensioners and deferred pensioners in terms of section (b) and (c) above, the actuary may use the actual cost (net of any commission) to purchase these liabilities from an insurance company.

A3. Determination of SR using Stochastic Asset Modelling

The solvency reserve would consist of an amount based on stochastic modelling of the possible insolvency of the fund at various dates in the future, measuring such insolvency as the inability to pay the fund benefits (taking into account the reasonable benefit expectations of members, pensioners and deferred pensioners in respect of contractual and discretionary benefits) based on parameters selected by the actuary in consultation with the board of the fund and the employer. Such modelling should take account of the investment strategy of the fund (and in particular the asset mix of the fund), the willingness of the employer to accept variation of the contribution rate, and any flexibility allowed by the Registrar in terms of current funding levels, in order to accommodate short-term fluctuations in asset values.

A4. Determination of SR using a Risk Resilience Reserve Approach

An amount based on the effect on the difference between the fair value of assets and the accrued service actuarial liabilities (AL as defined above), caused by:

- (a) a specified percentage fall in the equity market;
- (b) a specified increase, or decrease, in long-term bond yields (whichever will cause the more serious effect);
- (c) a specified strengthening in the Rand versus international currencies; and
- (d) a specified improvement in pensioner mortality;

as modified by actions that may be taken at the discretion of the board within the three years following the valuation.

The parameters should be set out by the actuary in the valuation report and should be broadly similar to those used in the capital adequacy reserve determination for a long-term insurer in terms of PGN104 issued by the Actuarial Society of South Africa.