

Actuarial Interest Factors Consultation

PSCBC

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Government Employees Pension Fund



Agenda

1. Time value of money
2. DB fund complexities
3. Why actuarial factors are used
4. Drivers for actuarial factor values
5. Assumptions used and their impact
6. Why the proposed factors are reducing
7. Why the actuarial factors have to be adjusted
8. Benefits affected by changes in actuarial factors
9. Questions

Time value of money primer



Why time value of money matters

- money today is worth more than the same amount in the future

Why???

- money today can earn interest
 - *compensation for inconvenience of not having access to the money*
 - *compensation for taking risk that money losing purchase power due to inflation*
 - *compensation for risk of money not being paid back (if lent out)*

This concept underpins all actuarial calculations.

Accumulating and discounting

Accumulation – Growing Money Over Time

- R100 invested at 10% interest becomes R110 in one year
- this growth is called accumulation

Discounting – Bringing Future Money Back to Today

- the reverse of accumulation
- to receive R110 in one year, only R100 is needed today (if interest rate is 10%)

Impact of interest rate

- the higher the rate the higher the growth
 - *resulting in a higher accumulated amount in the future*
- but inverse relationship with present values
- the higher the interest rate, the less you need to set aside today
- this is a key actuarial principle in calculating liabilities.

Value in one years time	Discount rate	Present value (current value today)
R110.00	10%	R100.00
R110.00	12%	R98.21

More Money in Future Doesn't Always Mean More Today

A counterintuitive insight

- at 18% interest, R97.46 today grows to R115 in a year
- more money in future (R115 vs R110), but less needed today!
- only possible if interest rate is higher

Present Value depends more on the interest rate than the size of the future payment.

Complexity of a defined benefit fund



DC Funds

Clear, Individualised Benefits

- in a DC fund, your benefit is the total of contributions made over time plus investment returns.
- each month, a fixed percentage of your current salary is contributed to your personal account.
- your account grows with interest or investment performance.
- the benefit is real and observable at any point – it is the accumulated balance
- however, this value can go up or down depending on market returns

DB Funds

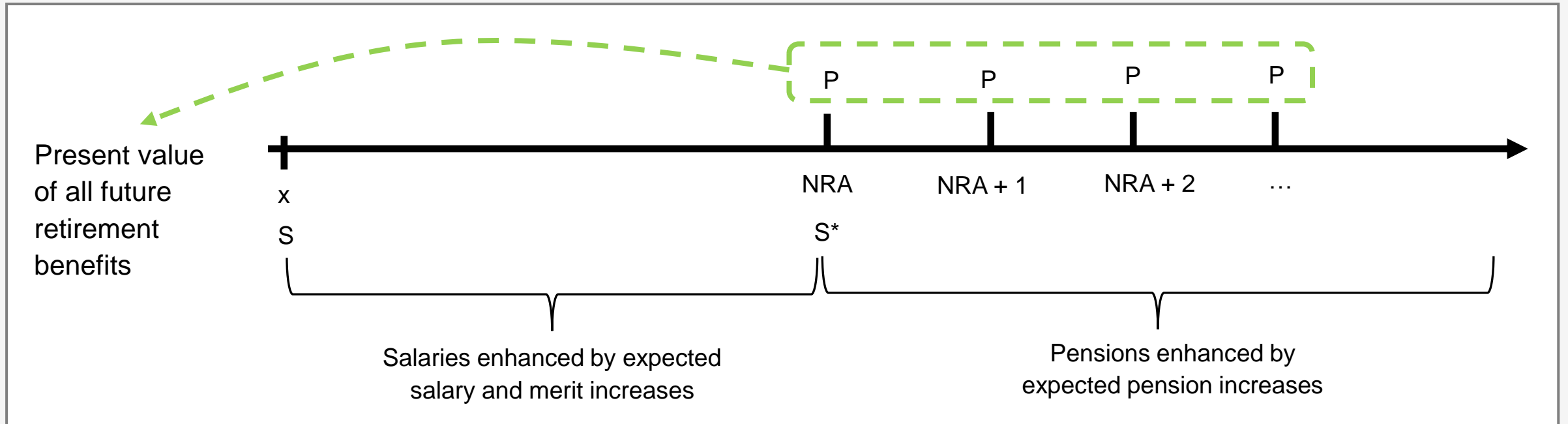
Service and Future Promises

- in a DB fund, like the GEPF, the benefit is not a fixed amount saved, but a promise of a future pension
- contributions are based on today's salary, but are not added to a personal account
- each month's contribution buys more service
- contributions today increase service, which determines future pension based on salary at retirement

Why do we use actuarial factors?



Actuarial factors



- Actuarial factors quantify the expected future pensions and express them as a lump sum in today's terms
- i.e. the factors estimate the lump sum payable today in exchange for the pension benefits payable to the member for life from retirement age
- The future pension benefit entitlements are expressed as a function of the age of a member

Why are actuarial factors used?



Used to calculate benefits due to members on certain types of exit

recalculated at each valuation
signed off by Minister of Finance
challenges experienced when factors are reduced



Why not do individual member calculations?

actuarial liabilities are complex and time-consuming to calculate
administratively costly in terms of large number of individual calculations



So why have a standard set of factors?

quicker and cheaper administratively
ensure consistency between members

What drives the value of the factors?



What affects the value of actuarial factors?

Life expectancy

- the longer a member and their surviving spouse are expected to live, the more pension payments the fund must make
- longer lifespans increase the total expected payments, resulting in a higher liability and higher actuarial factors.

Pension Increases

- pensions increase over time with pension increases.
- higher expected increases result in higher future pension payments, which raise the liability and factors

What affects the value of actuarial factors?

Salary growth

- the pensions are based on final average salary
- If future salaries are expected to be higher, this means higher pension payouts, again increasing the liability and factors.

Discount Rates (Time Value of Money)

- a higher discount rate means future pension payments are less valuable today → lower liability and factors

None of these drivers can be predicted with certainty hence assumptions about the future are required

Assumptions used



Assumptions adopted and their impact

Financial Assumptions	31 March 2021	31 March 2024	% change
Best estimate			
Discount rate	14.4%	15.7%	+ 1.3%
Inflation rate	9.2%	9.3%	+ 0.1%
Salary increases	10.2% plus merit scale	10.3% plus merit scale	+ 0.1%
Pension increases	7.4%	7.5%	+ 0.1%
Net pre-retirement rate	3.72%	4.91%	+ 1.19%
Net post-retirement rate	6.42%	7.71%	+ 1.29%

The final actuarial factors depend on the combined effect of all assumptions.

How realistic are these assumptions?



Assumptions adopted

Financial Assumptions	31 March 2024	31 March 2024	31 March 2024
	Valuation	Real	Current
Discount rate	15.7%	Inflation+6.4%	10.2%
Inflation rate	9.3%	inflation	4.0%
Salary increases	10.3% plus merit scale	Inflation+1% plus merit scale	5.0%
Pension increases	7.5%	80% of inflation	3.2%
Net pre-retirement rate	4.9%	4.9%	4.9%
Net post-retirement rate	7.7%	7.7%	7.7%

Absolute value is not as important as how the assumptions relate to each other

Why are the factors reducing?



Why are lower factors being proposed?

- Actuarial factors are influenced by how assumptions relate to each other, not just their absolute values
- Pensions in retirement increase every year
 - but these future increases are discounted back to today's value using a higher discount rate
- The bigger the gap between the discount rate and pension increase rate, the smaller the value today of the total pensions
- During working years, salary increases affect the pension benefit to be paid in retirement
- Future salary-linked benefits are discounted using the discount rate.
- A larger gap between the discount rate and salary increase rate also means lower value today of these future benefits.

Impact of change in economic assumptions

Financial Assumptions	31 March 2021	31 March 2024	% change	Impact on factors
Best estimate				
Discount rate	14.4%	15.7%	+ 1.3%	↓
Inflation rate	9.2%	9.3%	+ 0.1%	↑
Salary increases	10.2% plus merit scale	10.3% plus merit scale	+ 0.1%	↑
Pension increases	7.4%	7.5%	+ 0.1%	↑
Net pre-retirement rate	3.72%	4.91%	+ 1.19%	↓
Net post-retirement rate	6.42%	7.71%	+ 1.29%	↓

The final actuarial factors depend on the combined effect of all assumptions.

Why are lower factors being proposed?

- slightly higher inflation-related salary increase assumption in 2024
- slightly higher pension increase assumption in 2024

Decrease in average actuarial liability and factors??

- actual salary and pension increases (2021 – 2024) lower than assumed
- **higher net discount rates => lower value of benefits in today's terms**
- this means that, mathematically, less money is needed today to fund each Rand of future pension
- resulting in lower actuarial interest factors

*Note: **projected level** of benefits in retirement could increase, but still have a lower present value, due to **higher net expected investment returns** (i.e. level of investment returns in excess of salary and pension increases)*

Why a Larger Future Benefit Can Have a Lower Value Today?

The Apparent Contradiction

- members earn more service over time, so it's natural to expect larger future benefits
 - and that's correct: future pensions and gratuities are increasing.
 - yet, the actuarial interest factors (and present value of benefits) may be lower than before

The Time Value of Money Explains It

- ❖ while the benefits increased with more service, the value today of these benefits decreased due to the higher discount rate
- ❖ the higher discount rate reduced the amount the Fund needs to set aside today, despite the higher future payments
- ❖ So, the present value of the liability (and the actuarial factors) have reduced

Why do we have to adjust the factors?



Why are actuarial factors updated?

Ignoring required reductions causes overpayments on withdrawals and resignations

- ❖ if factors are not reduced when assumptions change, withdrawing or resigning members receive more than the fair value of their benefit
- ❖ this overpayment is not harmless – it creates an imbalance in the Fund.

Remaining Members Bear the Cost

- ❖ the extra amounts paid to early leavers reduce the pool of funds available.
- ❖ members who stay and retire later may receive less favourable benefits than they should
- ❖ in effect, remaining members subsidise early leavers.

Why are actuarial factors updated?

- The Fund guarantees the benefits payable in retirement
 - But cannot guarantee the value of the benefits
 - Value depend on assumptions about the future (i.e. market view)
- Assumptions are updated at each valuation date
- Factors must be revised for consistency with the assumptions
- If factors are not changed:
 - Overpay on exits => prejudices remaining members; or
 - Underpay on exits (get paid less than accrued benefits) => unfair to exits

Who is affected by the change?



Which benefits are affected?

- Actuarial factors apply to all benefits where actuarial interest is used, including
 - resignations – regardless of how many years of service a member has
 - retirements – where the member has less than 10 years of pensionable service.
 - other exits – such as retrenchment or dismissal, if service is less than 10 years.
 - savings withdrawals – from the Savings Component of the Fund
- Reflected in Member Statements
 - after a factor update, benefit values on member statements (e.g., resignation and savings benefits) may look different
 - this change reflects the updated assumptions used to value benefits

Who is not affected?

- Members who remain in the Fund until retirement and do not withdraw from their savings are not affected
 - reflected balances might change but if no withdrawal is made then they are unaffected by the change
- Pensioners are also not affected – their benefits have already been calculated and paid.

Summary



Ensuring fairness

Why we are proposing adjusting the actuarial factors

- not to reduce benefits, but to ensure that each member receives their fair share.
- current factors, if not updated, result in overpayments to early leavers

Protecting Long-Term Members

- ✓ our goal is to protect the retirement benefits of members who stay in the Fund
- ✓ these members contribute longer – to the Fund– and deserve fair treatment

Shared Goal, Different Path

- we understand that your aim is to protect members' benefits – we share this goal.
- protection means ensuring fairness across all members, now and in the future

Updating the factors is about fairness and sustainability, ensuring that no group subsidises another and that the Fund can deliver on its promises to all members, especially those who stay until retirement.

Questions?

