

Definition of value creation ratios

Value creation ratios

ATP's value creation ratios figures are as follows:

- Value creation, total
 - Value creation from pensions
 - Guaranteed pensions
 - Life annuity with market exposure
 - Value creation from unallocated funds
 - Bonus potential
 - Long-term supplementary provisions

The ratio "Total value creation" is an expression of the total value creation in ATP. It is calculated by aggregating the value creation in the individual parts of ATP. The following describes how the value creation in the individual parts is calculated and how the aggregation takes place.

Guaranteed pensions

Value creation from guaranteed pensions describes the average return that occurs in the guaranteed pensions during the period. This ratio illustrates the connection between the contributions paid and the guaranteed benefits (cash flows). Value creation from the guarantees in an individual year is calculated as the return on a 'pension account', PA, corresponding to the value of all interest-bearing contributions to a guaranteed pension.

It has not been possible to recreate the guaranteed cash flows from ATP's start in 1964. The value of the pension account when this calculation started in the beginning of 2008 has therefore been determined at DKK 281bn, corresponding to the value of the guaranteed benefits at the end of 2007. The amount of DKK 281bn is considered an individual contribution to the pension account.

Based on the guaranteed cash flow at the end of 2007, the return on this contribution can be determined as the interest, r , which satisfies the following equation:

$$\text{Contribution}_{\text{year end 2007}} = \sum \text{CF}(t) (1+r)^{-(t-2008)}$$

where $\text{CF}(t)$ is the payment from the guaranteed cash flow until the time, t . It is assumed that all payments are made mid-year.

In the future, contributions will be made to the pension account in the form of, for example, ordinary contributions from members, update of life expectancy, addition of bonus, transfers from life annuity with market exposure, etc. At the end of a year, the payments, $B(t)$, added to the guaranteed benefits over the year can be calculated. At the same

time, the acquired guaranteed cash flow can be calculated by deducting the cash flow at the beginning of the year from the cash flow at the end of the year:

$$\Delta \text{CF} = \text{guaranteed cash flow, end of year} - \text{guaranteed cash flow, beginning of year}$$

The interest on year i 's contributions is the interest, r , that satisfies the equation:

$$\sum B(t)(1+r)^{(i+1-t)} = \sum \Delta \text{CF}(t)(1+r)^{-(t-(i+1))}$$

For each year, the interest payable on contributions in future will be calculated to ensure that contributions made in the year correspond to the future guaranteed payments relating to these contributions. Accordingly, the pension account can be seen as a number of subaccounts that each bears the interest that was determined in the period in which the relevant subaccount was set up. The total value of the pension account at the beginning and end of the period can be determined by adding up all subaccounts at the beginning and end of the period. When correcting for the payments, $U(t)$, and contributions, $B(t)$, over the year, the interest on the pension account can be calculated as the interest, r , that satisfies the equation:

$$\text{PA}_{\text{year-end}} = \sum B(t)(1+r)^{(i+1-t)} - \sum U(t)(1+r)^{(i+1-t)} + (1+r)\text{PA}_{\text{beginning of year}}$$

Life annuity with market exposure

The provision for life annuity with market exposure, PM, is calculated at the beginning and end of the period. This will, among other things, have changed with the return attributed to life annuity with market exposure during the period. The calculation of the value creation also takes into account the period's withdrawals (transfer to ordinary life annuity), $U(t)$, and payments, $B(t)$.

$$\text{PM}_{\text{year-end}} = \sum B(t)(1+r)^{(i+1-t)} - \sum U(t)(1+r)^{(i+1-t)} + (1+r)\text{PM}_{\text{beginning of year}}$$

Bonus potential

The bonus potential, BP, is calculated at the beginning and end of the year and adjusted for the contributions, $B(t)$ (bonus contributions) and payments $U(t)$ (life expectancy update, bonus etc.) that have occurred during the year. The interest on the bonus potential is the interest, r , that satisfies the equation:

$$\text{BP}_{\text{year-end}} = \sum B(t)(1+r)^{(i+1-t)} - \sum U(t)(1+r)^{(i+1-t)} + (1+r)\text{BP}_{\text{beginning of year}}$$

Long-term supplementary provisions

The long-term supplementary provisions, LSP, is calculated at the beginning and end of the period and adjusted for the payments B(t) and withdrawals U(t) that have occurred during the period. The change in long-term supplementary provisions from interest is recognised as an addition to the long-term supplementary provisions so that the value creation reflects the return in the related Supplementary hedging portfolio. The value creation for the long-term supplementary provision is the interest, r, that fulfils

$$LSP_{\text{year-end}} = \sum B(t)(1+r)^{(i+1-t)} - \sum U(t)(1+r)^{(i+1-t)} + (1+r)LSP_{\text{beginning of year}}$$

Value creation from pensions

Value creation from pensions is the aggregated value creation from guaranteed pensions and life annuities with market exposure. The ratio is calculated by taking the sum of the pension account and the provision for life annuity with market exposure (PA+PM) at the beginning and end of the year, adjusted for the sum of payments into and out of the pension account and life annuity with market exposure. Value creation from pensions is the interest rate, r, which fulfils

$$(PK+BP)_{\text{year-end}} = \sum B(t)(1+r)^{(i+1-t)} - \sum U(t)(1+r)^{(i+1-t)} + (1+r)(PK+BP)_{\text{beginning of year}}$$

Value creation from unallocated funds

Value creation from unallocated funds is the aggregated value creation from the Bonus potential and Long-term supplementary provision. The ratio is calculated by taking the sum of the Bonus potential and Long-term supplementary provision (BP+LSP) at the beginning and end of the year, adjusted for the sum of payments into and out of the Bonus potential and Long-term supplementary provision. Value creation from unallocated funds is the interest rate, r, which fulfils

$$(BP+LSH)_{\text{year-end}} = \sum B(t)(1+r)^{(i+1-t)} - \sum U(t)(1+r)^{(i+1-t)} + (1+r)(BP+LSP)_{\text{primo}}$$

Value creation, total

Total value creation is the aggregated value creation from pensions and unallocated funds. The ratio is calculated by taking the sum of pensions (P = PA + PM) and unallocated funds (UF = BP + LSP) at the beginning and end of the year, adjusted for the sum of payments in and out for pensions and unallocated funds. Total value creation is the interest, r, which fulfils

$$(P+UM)_{\text{year-end}} = \sum B(t)(1+r)^{(i+1-t)} - \sum U(t)(1+r)^{(i+1-t)} + (1+r)(P+UM)_{\text{beginning of year}}$$