



International Labour Organization

## Actuarial funding study of the Staff Health Insurance Fund

Ernst & Young Advisory  
December 2022

This document has been elaborated on the basis of the requirements and information you have communicated to us, with reference to your context, and taking into account the current legal and economic environment.

The findings presented were elaborated on the basis of our methods, processes, techniques and know-how. Accordingly, they, together with the support medium, are our property. The decision as to whether or not to implement these findings, as well as the methods of such implementation, is your responsibility.

This document, the form and content of which are reserved for your internal use only, is confidential. It may only be disclosed to third parties with our agreement; however, EY expressly authorizes the communication, to any person, of the detailed advice pertaining to the tax areas of this document; in any case, we do not assume any liability with respect to third parties.

This document is issued in accordance with the contract entered into between us.

December 2022

Dear Madam, dear Sir,

In accordance with our contract signed on 10 May 2022, we have performed the actuarial valuation of the International Labour Organization Staff Health Insurance Fund for the period 2022-2032.

The present report details:

- The results of the funding study for the period 2022-2032.
- The actuarial assumptions used for the projections.
- Projections under different scenarios.

The report was prepared under the supervision of the Actuary shown below. The undersigned credentialed actuary meets the Qualification Standards of the French Institute of Actuaries to render the actuarial opinion contained herein. We are not aware of any relationship, including investments or other services that could create a conflict of interest that would impair our objectivity.

We remain at your disposal to present in more details our report and to answer to any questions.

Yours sincerely,

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Maxime Renaudin

*Partner*

*Fellow of the French Institute  
of Actuaries*



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# 1. Context

## 1.1. Assignment

EY was mandated by the International Labour Organization (so called the ILO) to perform 10-year projections in order to analyze the funding of the ILO Staff Health Insurance Fund (so called SHIF).

In this document, we present:

- An overview of the SHIF population, the assumptions and the methodology used to perform the projections under the scope of the study.
- The results of our projections under different scenarios.

Our assumption studies are based on the population data for the last 4 years (2018-2021).

The actuarial study is based on participant data supplied by the ILO as at 31 December 2021.

In performing our studies, we relied on data and qualitative information provided by the ILO. We did not undertake any procedure to check the accuracy or the validity of the data provided other than reasonableness and consistency according to our experience. Any inaccuracies or inconsistencies in the data could have a significant effect on our analysis.

The scenarios modelled do not constitute a minimum-maximum range of possible outcomes and are only reflective particular sets of assumptions chosen.

## 1.2. ILO Staff Health Insurance Fund

The SHIF is a health insurance entity serving persons insured under the auspices of the ILO.

Persons benefiting from SHIF insurance coverage include active staff members and former officials, their dependent spouses and children and their survivors.

The SHIF health insurance is compulsory for active staff members of the ILO and facultative for its former officials.

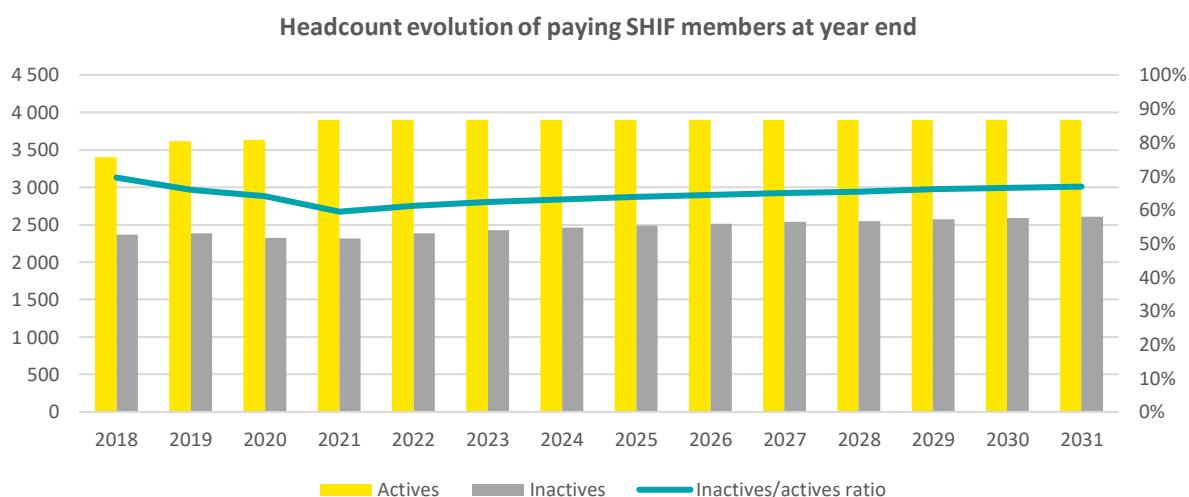
The SHIF is a self-administered fund. Its income is derived from contributions assessed upon the insured persons' remunerations or pensions and from contributions paid on their behalf by the ILO.

## 2. Executive summary

### 2.1. Headcount

While the headcount of inactive members over the last few years remained rather flat, the headcount of active members increased slightly. Hence the inactive/active ratio decreased.

For the projection, we assumed that the number of active members remained constant. The inactive/active ratio is therefore slightly increasing over the projection period.



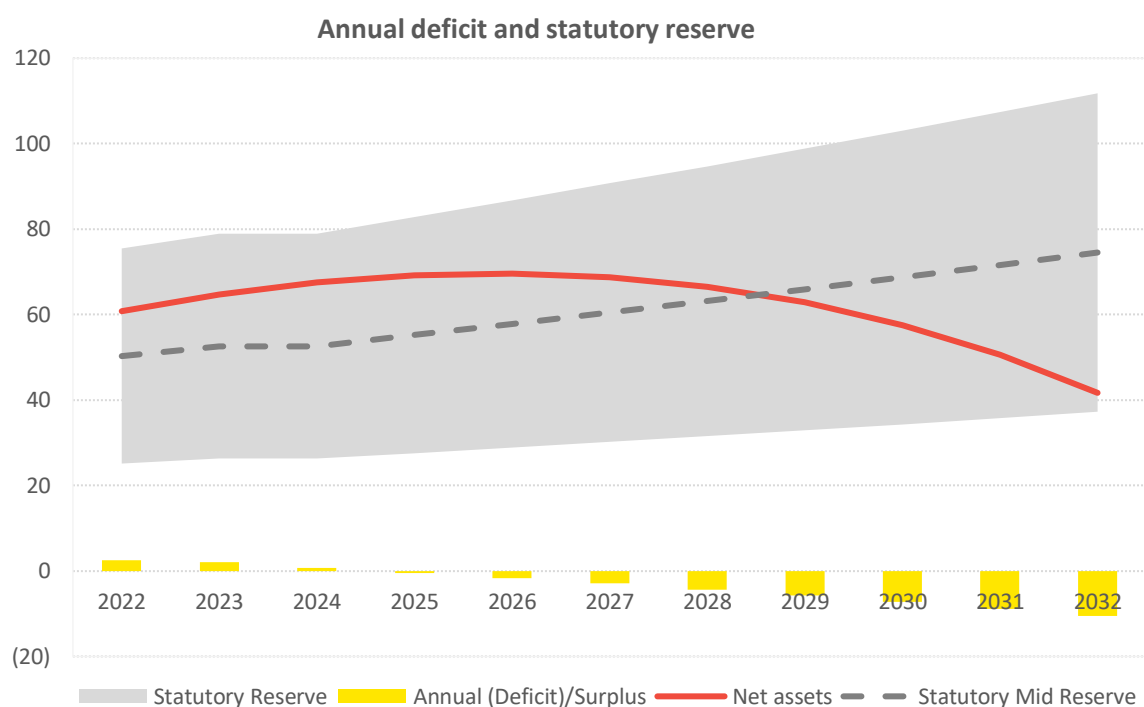
### 2.2. Central scenario

#### *Cash flow and net assets evolutions*

In 2021, claims reimbursements are exceeding the total contributions which is mainly due to Covid-19 catch-up medical consumption.

However, considering a “normal” situation (i.e. before Covid-19 crisis), the contributions will exceed the claims reimbursements between 2022 and 2024. As the current participant population ages and medical costs rise at a pace outstripping rise in contributions, this trend will reverse in 2025.

Net assets of 67.3 mUSD in 2021 are expected to continue to grow until 2026 due to investment income and contributions higher than claims reimbursements but will then decrease down to 41.7 mUSD in 2032 and will reach the minimum statutory reserve.



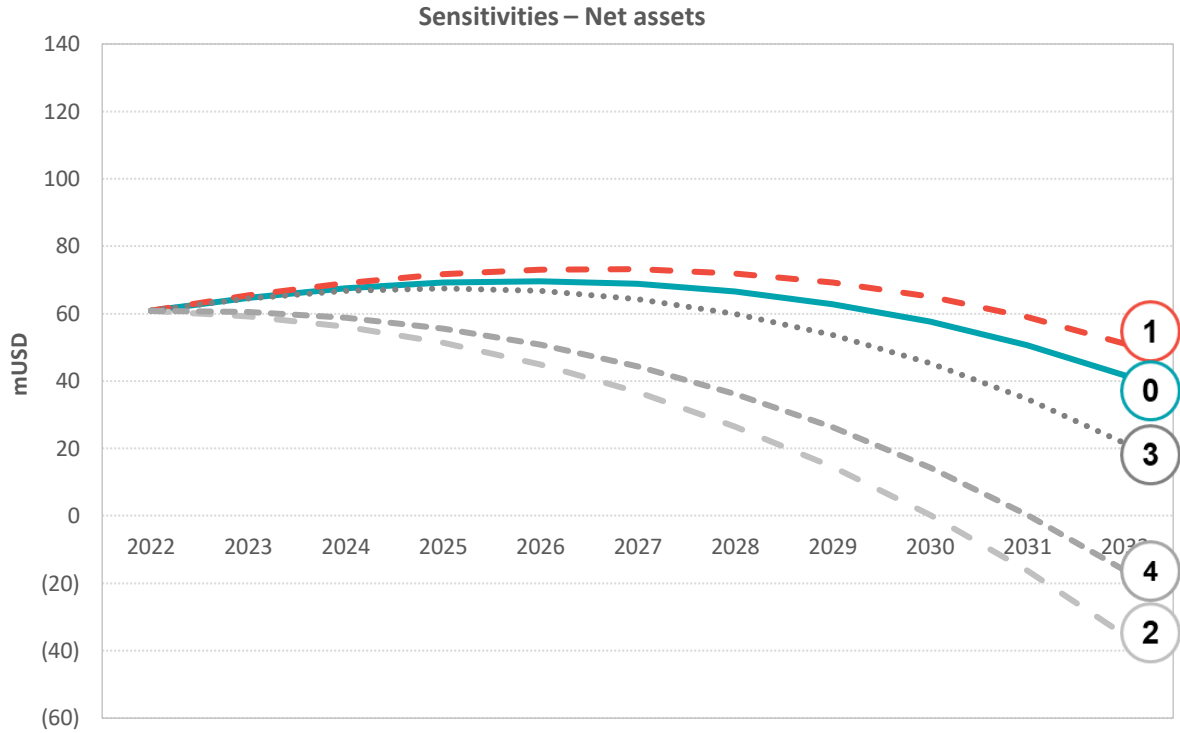
## 2.3. Sensitivities

### Sensitivities - Net assets

Several sensitivity scenarios have been performed. They are summarized below.

	Return on investments	Claims reimbursements	Medical inflation	Exchange rate
Central scenario (0)	2.5%	2018-2021 claims	3.2% (2021) down to 2.9% (2024)	Rates at 31.12.2021
Scenario 1	3.5%	Id. central	Id. central	Id. central
Scenario 2	Id. central	2021 claims	Id. central	Id. central
Scenario 3	Id. central	Id. central	3.7% (2021) down to 3.4% (2024)	Id. central
Scenario 4	Id. central	Id. central	Id. central	USD -10% vs. EUR/CHF

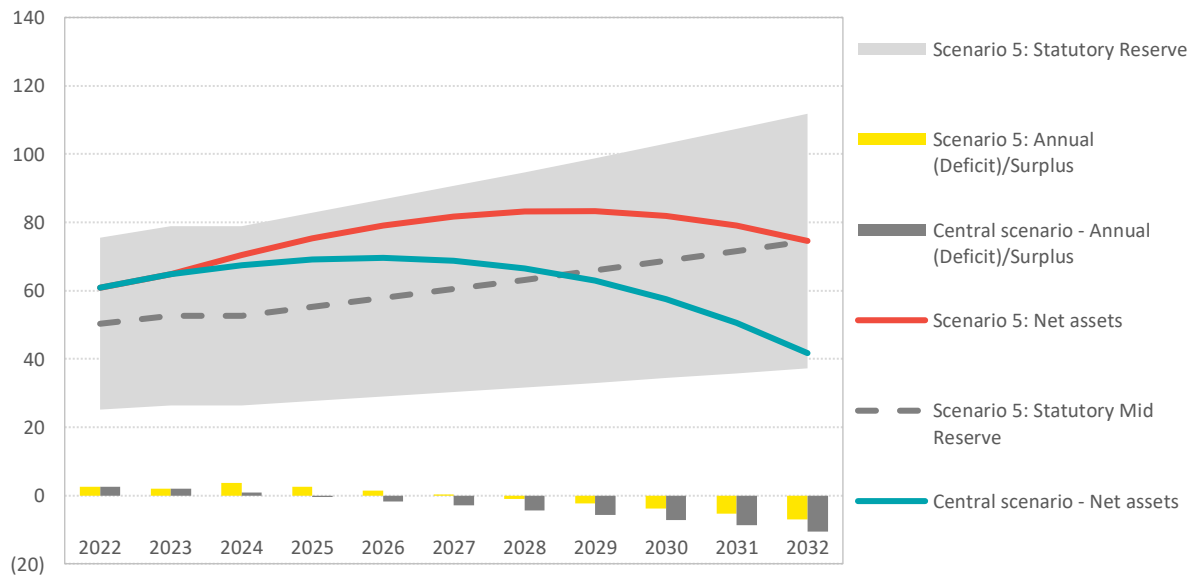




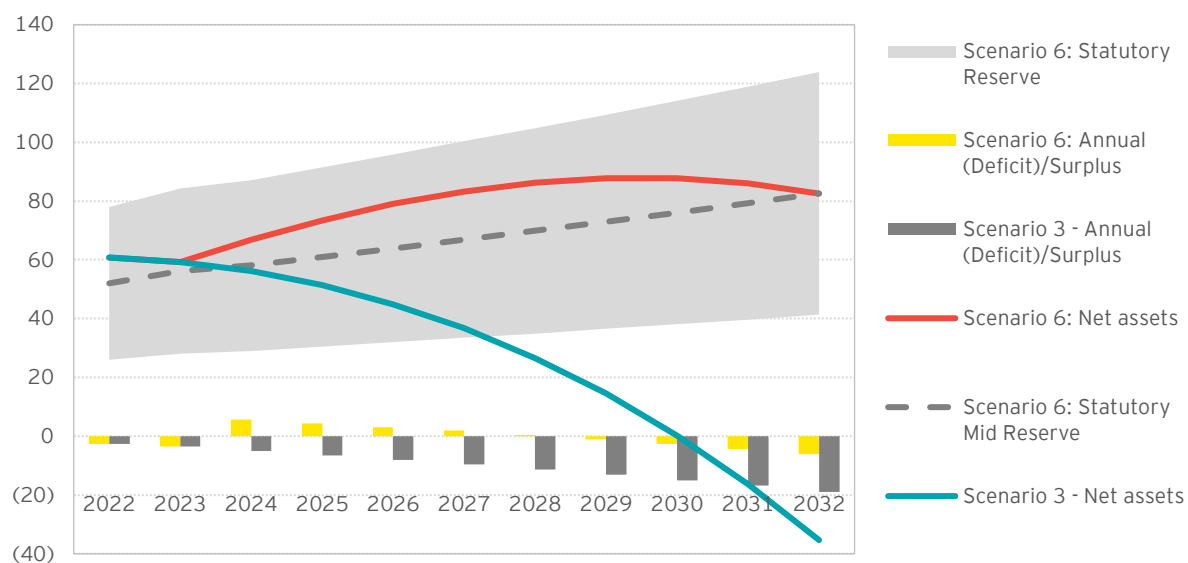
## 2.4. Assessment and recommendation

### Assessment

To reach the statutory mid reserve in 2032, we assessed that the ILO should **increase the contributions by 5%** from 01.01.2024 (scenario 5).



Should the more conservative 2021-based claims curve be used, we assessed that the ILO should **increase the contributions by 19% from 01.01.2024 (scenario 6).**



### Recommendations

While contributions levels may appear sufficient at this point, the ILO should consider a change in the contribution rates after 2023, to ensure future plan solvency.

## 3. Population statistics

### 3.1. 2021 population summary

	Headcount	2021 contributions (mUSD)	2021 claims reimburs. (mUSD)	Average age	Percentage of females	Percentage of professional staff
Active members	3 900	28	9	46	55%	37%
Inactive members	2 354	23	46	76	52%	
Total population	6 254	51	55	57	54%	

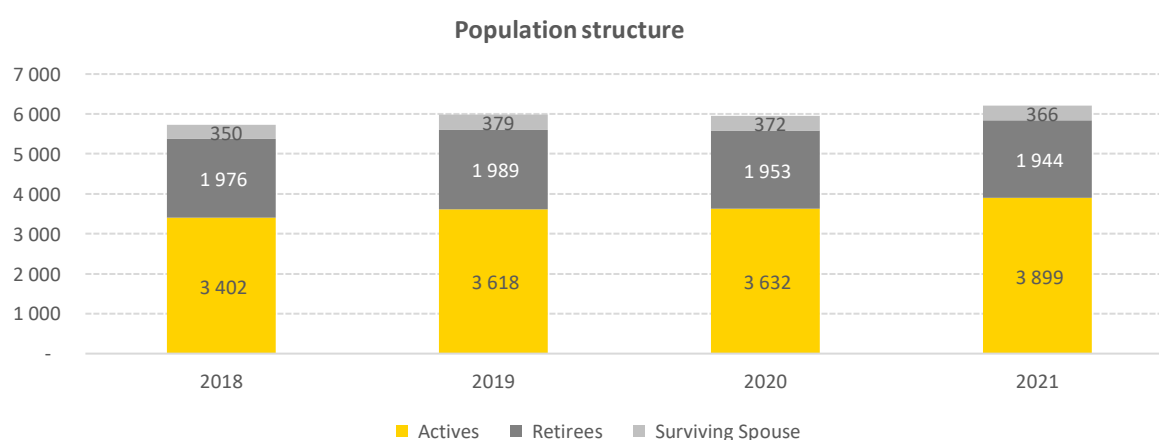
### 3.2. Total population

The table and graphs below show the repartition of the population:

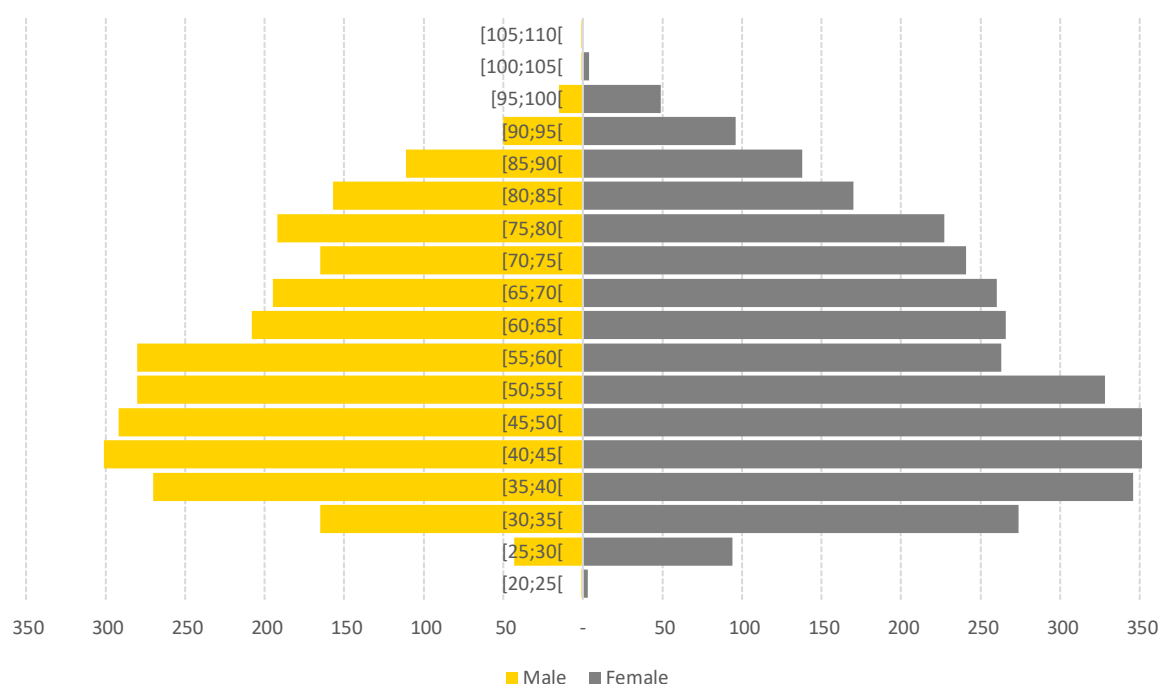
- From 2018 to 2021, the inactives/actives ratio is decreasing: over the last 4 years, the retiree population remains stable, whereas the active population increases by 15%.
- The repartition of males and females are quite similar though the different age brackets, but the proportion of females increases in higher ages.

Paying SHIF members	2018	2019	2020	2021
Actives (*)	3 402	3 618	3 632	3 899
Inactives (**)	2 366	2 414	2 369	2 354
Inactives/actives ratio	70%	67%	65%	60%

(\*) including Turin staff; (\*\*) including external volunteers



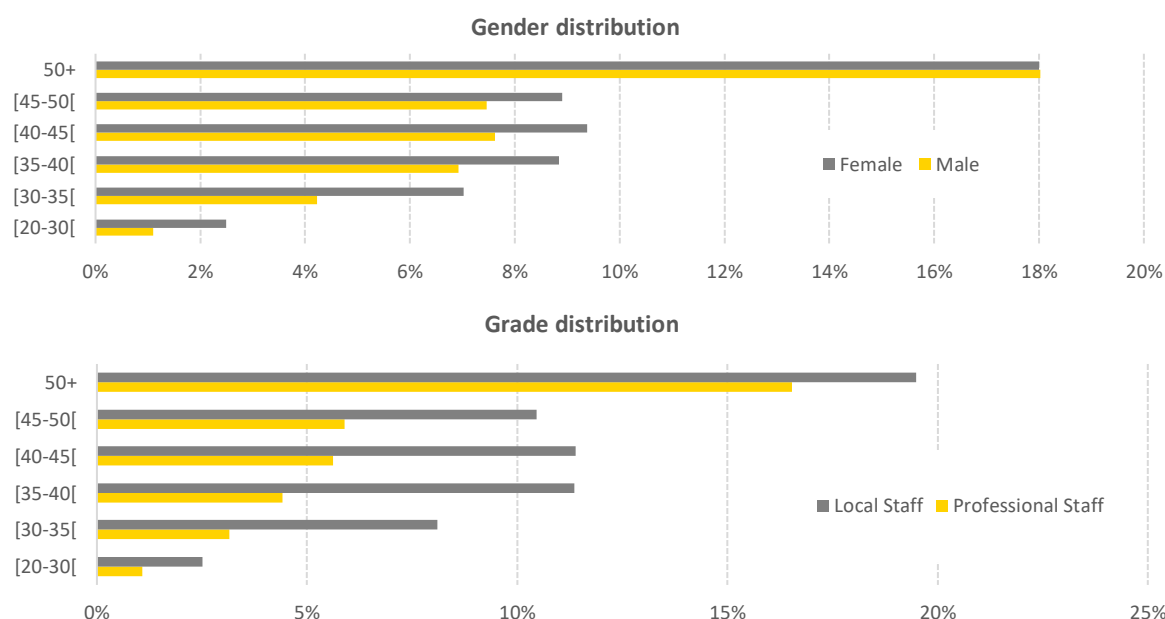
### Age repartition within the paying members (2021)



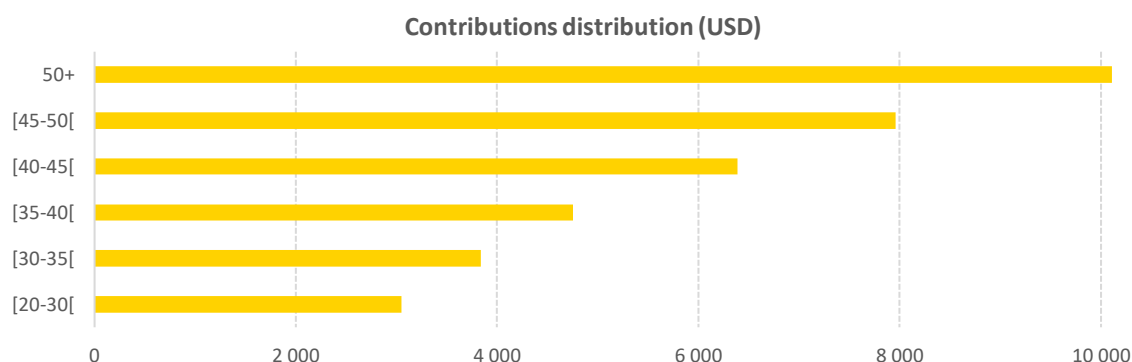
## 3.3. 2021 active members

The table and graphs below show the structure of the active population in 2021:

- The proportion of men (resp. professional staff) is increasing with age, presumably reflecting a larger share of women (resp. local staff, i.e. General staff and National Officer staff) in recent years.

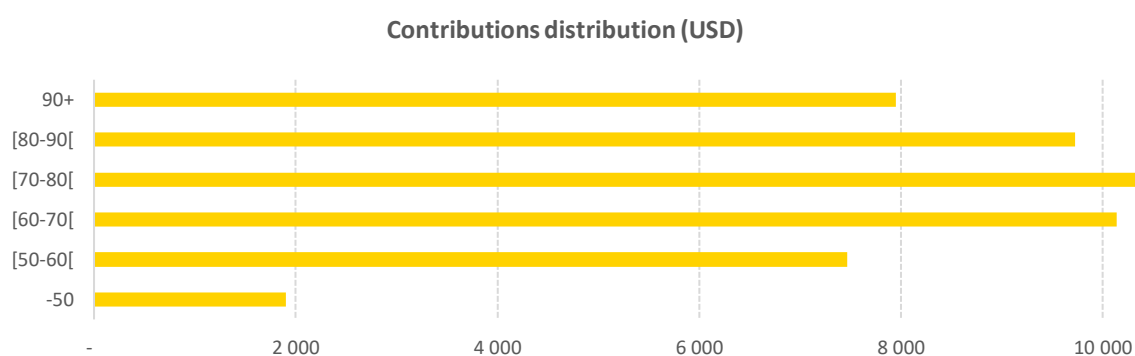
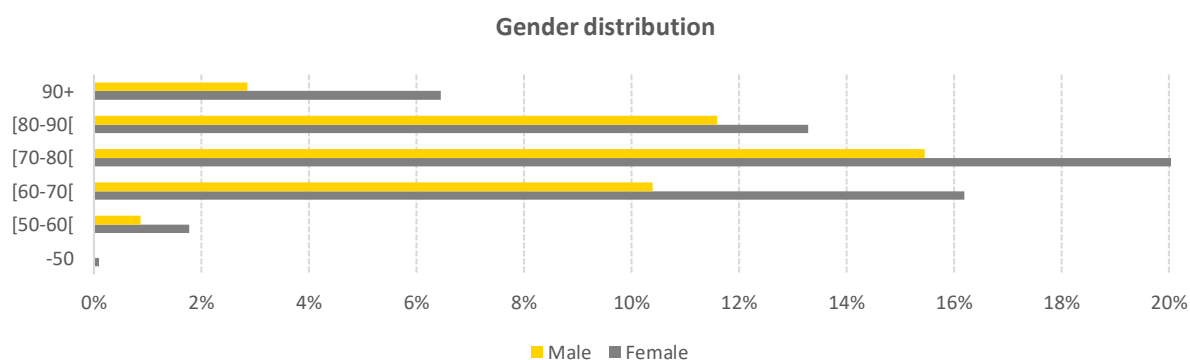
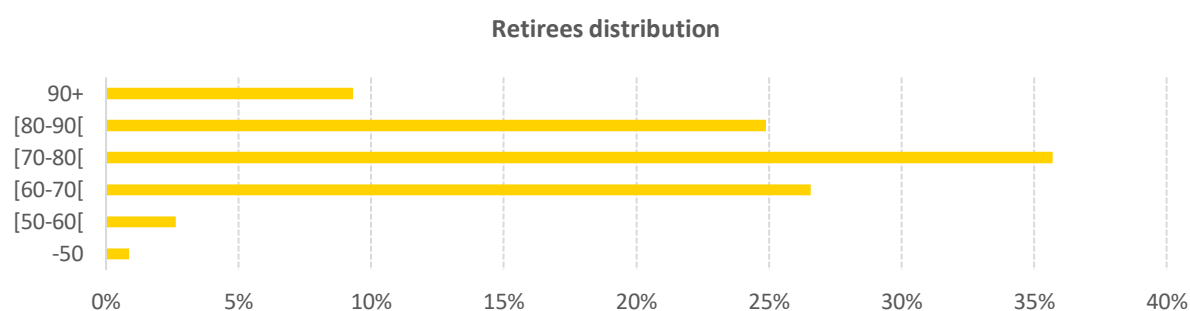


- The distribution of the contribution is increasing by age consistently with the distribution of the active members.



### 3.4. 2021 retired members

The graphs below show the structure of the retiree population.

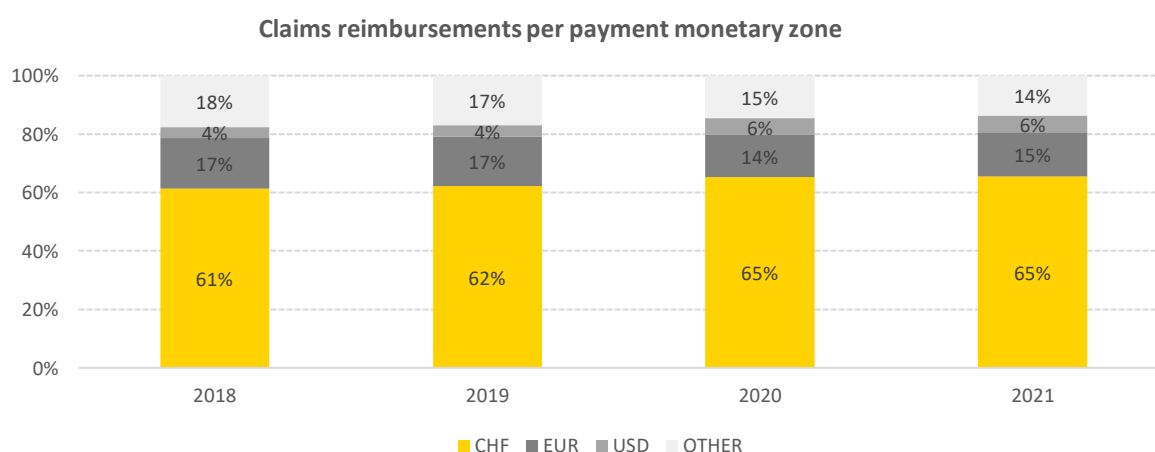
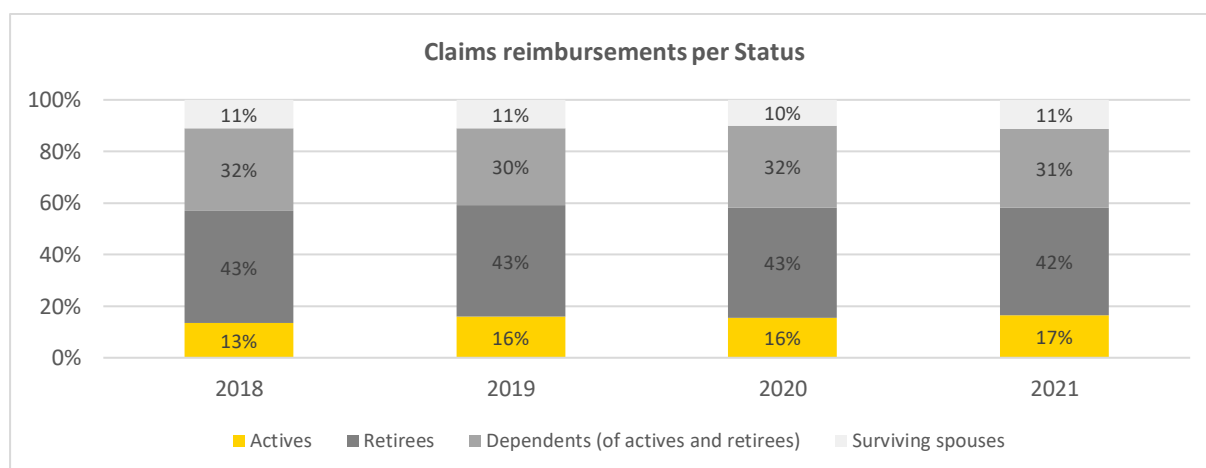


### 3.5. Claims reimbursements paid by the fund

The table and graphs below show statistics on the claims reimbursements over the last 4 years:

- After a Covid-related decrease in 2020, the claims reimbursements' amount rose significantly in 2021.
- The main payment currency is the CHF.

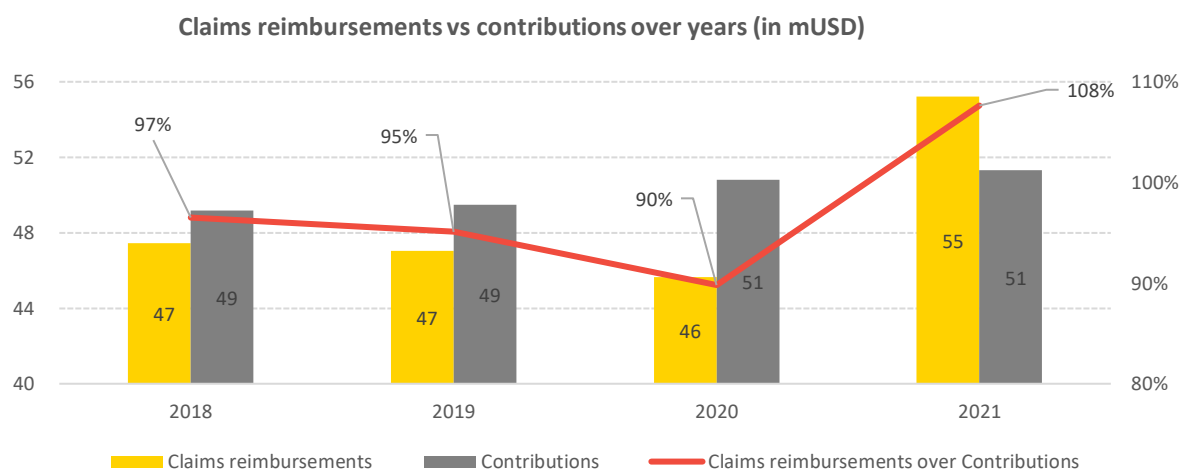
In millions of USD	2018	2019	2020	2021
Claims reimbursements - considering the USD exchange rate at payment date	47.5	47.0	45.6	55.2
Claims reimbursements - considering the USD exchange rate at 31.12.2021	47.2	45.2	45.0	55.8
Ratio	(0.61%)	(3.87%)	(1.33%)	1.04%



### 3.6. Contributions and claims reimbursements

The graphs below show statistics on the contributions and claims reimbursements paid over the last 4 years:

- The loss ratio is always near the breakeven over the last 4 years.
- Due to the exceptional context of year 2020, the loss ratio reached its minimum value. This led to an overconsumption in 2021 that significantly raised the loss ratio.

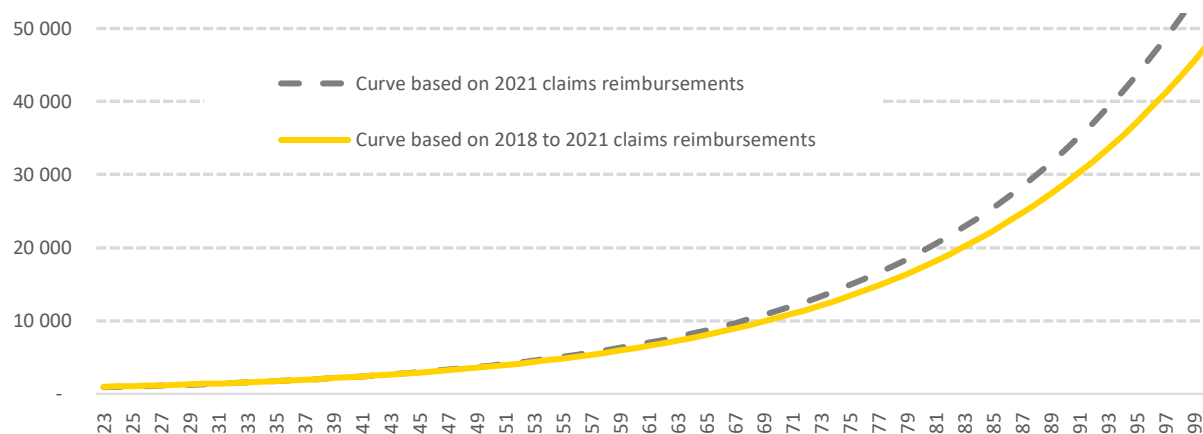


## 4. Assumptions

### 4.1. Claims reimbursements curves (per family)

The methodology used to build the per family claim assumption on the insured population is summarized below:

- We gathered claims reimbursements history for the years 2018 to 2021.
- We identified the claims reimbursements by family, by principal's age and for each year of history.
- We determined the distribution of claims reimbursements per age for each year of history.
- We built two curves smoothing average claims reimbursements over different time periods (2018 to 2021 and 2021).

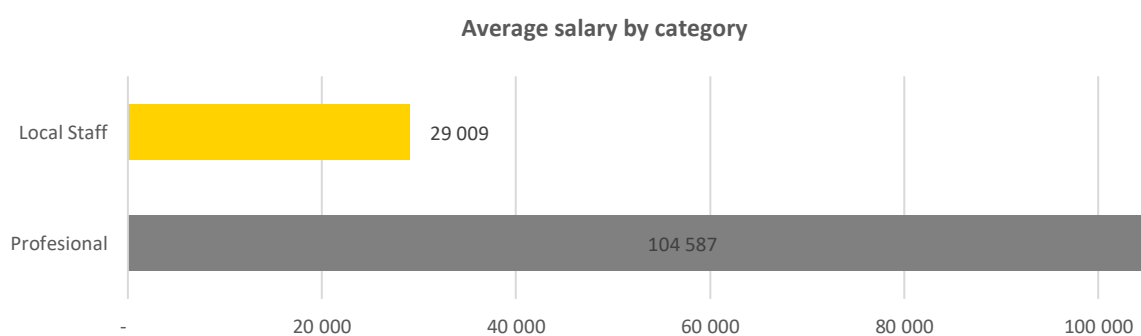
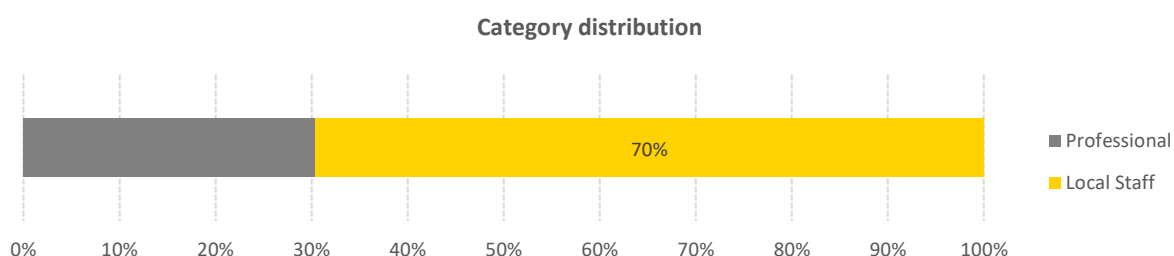
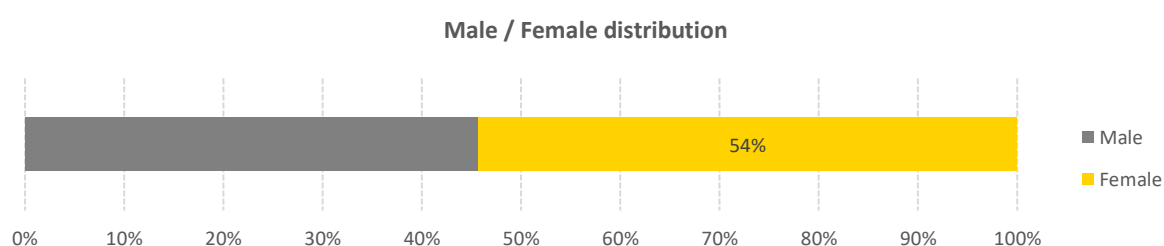
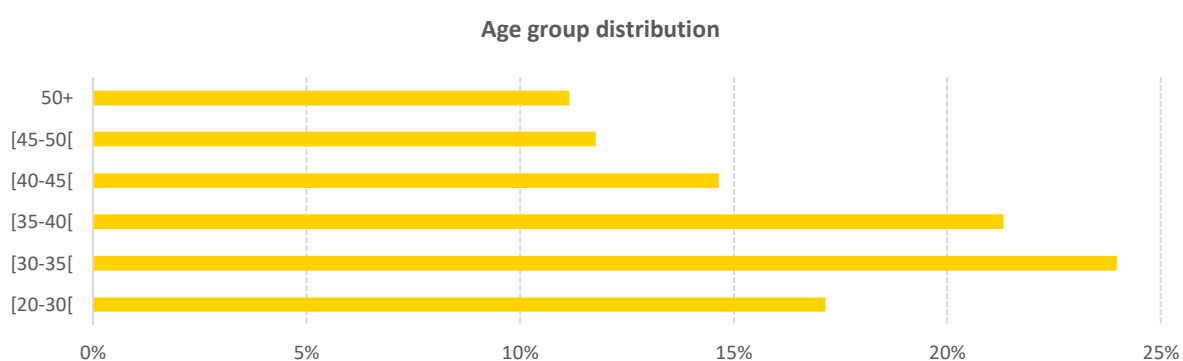




## 4.2. New entrants

In order to maintain stable the number of active staff, the number of new entrants is determined to compensate exactly each year the number of departures from the plan. Methodology used to build the new entrants assumption:

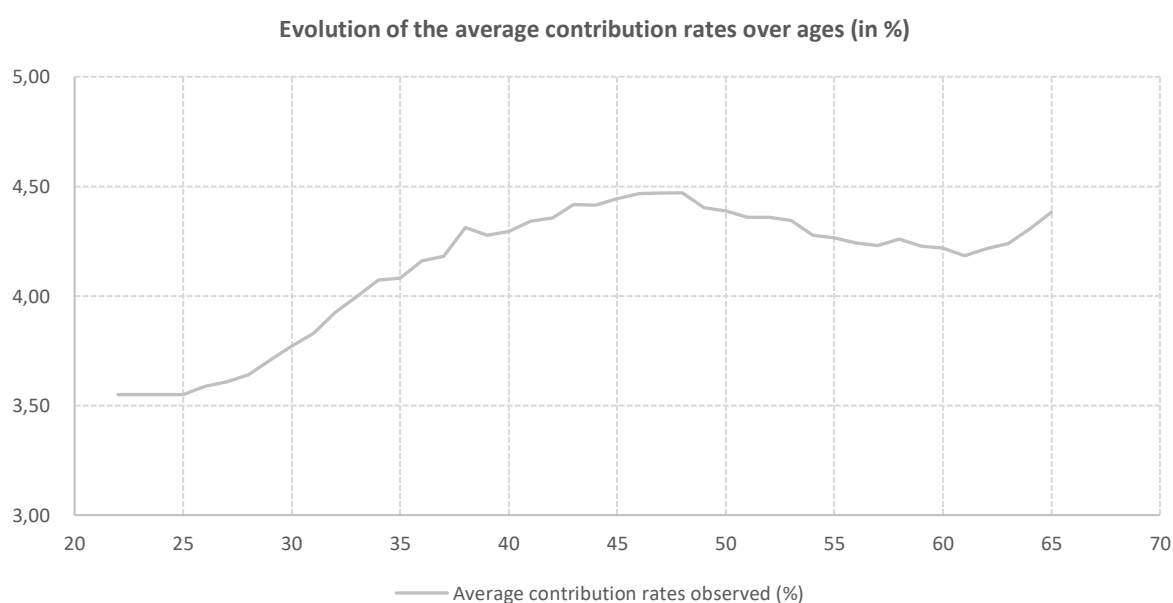
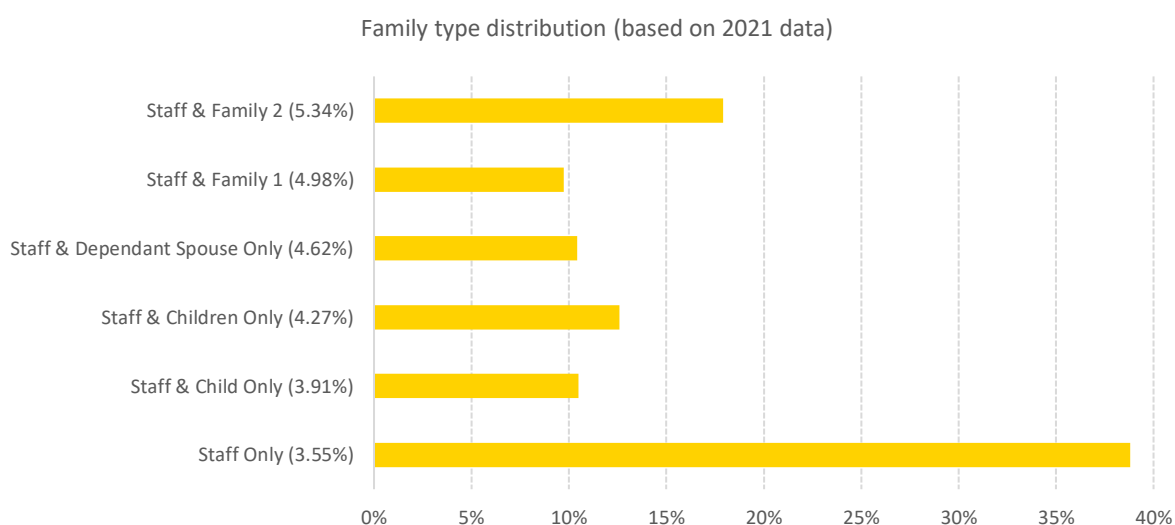
- Identification of the characteristics of the new entrants based on historical data (from 2018 to 2021), analysis by age group, by gender and by category.



### 4.3. Staff members contributions rates

Methodology used to build the contribution rate assumption on the insured population:

- Contribution rates data provided for the years 2018 to 2021.
- Identification of contribution rates by family, by principal's age and for each year of history.
- Determination of the contribution rates distribution per age for each year.
- We assume that from 65, the family structure remains unchanged.
- Due to a significant pension adjustment in 2022, an additional adjustment of inactive contributions of 6% from end of 2022 has been considered in projections.



## 4.4. IBNR

The table below presents the ratio of Incurred But Not Reported (IBNR) claims reimbursements observed for each year of history (2017 - 2021). The data have been provided by the ILO:

- The IBNR ratio remains stable over the observed period.
- The IBNR assumption was determined using ILO's IBNR observation method.

Year	2017	2018	2019	2020	2021	Total
Claims reimbursements amounts	36	36	36	33	40	180
IBNR amounts	14	13	13	13	16	68
Total	49	48	48	45	55	245
Ratio	29%	27%	27%	28%	29%	28%

*Amounts in mUSD, provided by the ILO*

## 4.5. Main financial assumptions

Assumption	Value	Source
Inflation rate	2.50%	Same as 2021 IPSAS assumption, from UN Task Force.
Medical inflation	3.20% in 2021 decreasing to 2.90% in 2024 (annual grade down of 10bp)	Same as 2021 IPSAS assumption, from UN Task Force.
Rate of return on investments	Loss of 6.5 mUSD in 2022 on the fund From 2023, 2.50%	Inflation rate, from ILO

## 4.6. Other actuarial assumptions

### *Demographic assumptions*

Assumption	2022 Study	Source	2021 ASHI IPSAS 39 valuation
Mortality, Retirement and disability rates	IPSAS 39 assumptions provided by the UNJSPF in 2021	Based on the UNJSPF assumption	Idem
Withdrawal rates	2021 ASHI assumptions weighted by entity headcounts	Based on the ILO recent experience	Idem
Age difference between spouses	Male 5 years older than female	Historical assumption provided by the ILO	Idem

### *New entrants staff assumptions*

Assumption	2022 Study	Source	2021 ASHI IPSAS 39 valuation
Population growth	The total number of actives insured over the projection period is maintained. The number of new actives insured compensates exactly the number of departures from the plan (mortality/withdrawal/retirement).	Common assumption for open group projection and agreed with the ILO	Not applicable because IPSAS 39 valuation implies a closed group approach
Distribution of new entrants	17% of new entrants between 20 and 30 years old 24% of new entrants between 30 and 35 years old 21% of new entrants between 35 and 40 years old 15% of new entrants between 40 and 45 years old 11% of new entrants older than 50 years old 54% of females / 46% of males 70% of Local Staff / 30% of Professional	Based on recent ILO experience	

### *Financial assumptions*

Assumption	2022 Study	Source	2021 ASHI IPSAS 39 valuation
Per Capita claims assumption per age	Average claim cost evolution by age was obtained from the observed claims reimbursements data per family over the 2018 - 2021 period	Based on SHIF recent experience	Based on recent actual claims and enrollment experience collected in 2019 adjusted yearly according to medical inflation provided by the ILO
Percentage of actives electing the retiree coverage	97.5%	Provided by the ILO	Idem
Inflation rate	Based on consensus forecast for CHF and market based for EUR. This assumption is used to increase the new entrants salaries from one year to another. The inflation rate used is 2.5%	Provided by UN Task Force	Idem
Medical Inflation Rate	IPSAS 39 assumptions Ultimate value of 2.90% as at 2024	Provided by UN Task Force	Idem
IBNR	Average IBNR over the past 5 years (§ 4.4)	Provided by the ILO	Not applicable to IPSAS 39 valuation
Rate of return on investments	Inflation rate = 2.5%	Provided by the ILO	Not applicable to IPSAS 39 valuation
Salary increase assumption and merit scale	IPSAS 39 assumptions provided by the UNJSPF in 2021	Based on UNJSPF assumption	Idem
Average contribution rates	Based on experience study: a contribution rates curve increasing per age starting from 3.55% to 4.47%	Experience analysis based on the 2018-2021 data	The ILO historical practice: Future retirees: flat contribution according to plan rules

Assumption	2022 Study	Source	2021 ASHI IPSAS 39 valuation
	Additional adjustment of inactive contributions of 6% from end of 2022		For current retirees: contributions as provided in the census data
Pension replacement rate	Based on experience study: 51%	Determined with the ILO: experience analysis based on the 2018-2021 data	Table depending on seniority
Ratio between Pensionable salary and SHIF base salary	Based on experience study: 126%	Determined with the ILO: experience analysis based on the 2018-2021 data	Not applicable to IPSAS 39 valuation

## 5. Methodology

### 5.1. Open group projection

#### *Demographic projections*

An open group projection was performed on a 10 years horizon to allow a long term study on the solvency of the plan

The open-group approach takes into consideration all current eligible beneficiaries (I) of the scheme as well as future beneficiaries (II):

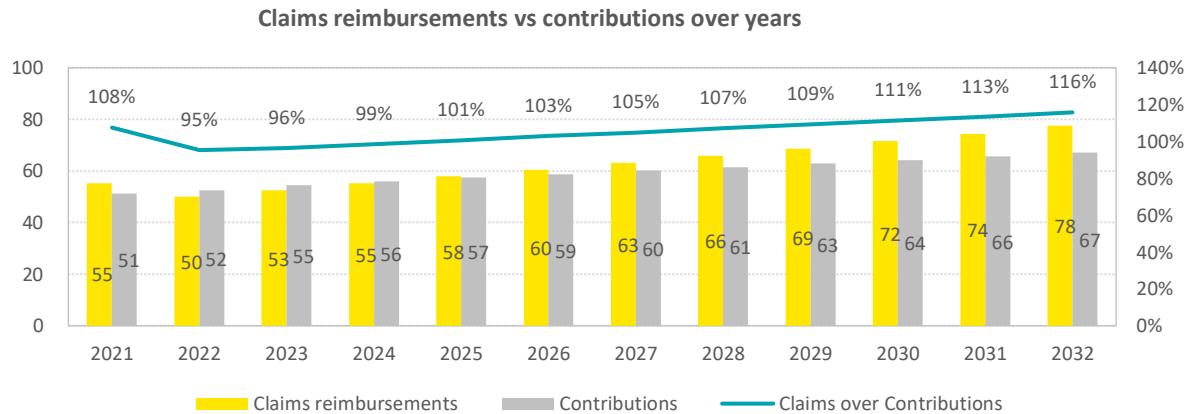
- (I): For current population, an individual projection (demographic and financial) was carried out based on information provided for the ILO as at 31 December 2021.
- (II): For future beneficiaries, 24 classes were built depending on the profiles and key characteristics of new hired staff (based on historical census data from 2018 to 2021):
  - Gender (Female and Male).
  - Age of entry (6 age groups).
  - Category (Professional and Local Staff\*).

*\* Local Staff refers to General staff and National Officer staff*

### 5.2. Contributions and claims reimbursements projection

#### *Cash-flows projections*

- Future cash inflows (employees and employer contributions) and outflows (claims reimbursements) were projected for current and future eligible staff members.
- Expected claims reimbursements represent the amounts to be paid for the beneficiaries under this scheme, including the reimbursements due to new entrants.
- Both employees and employer contributions being based on salaries/pensions, we computed the evolution of salaries for every member of the current population and for each class of the future population. Salary of new entrants are forecasted with inflation and, once entered in the ILO system, salaries are forecasted based on the salary increase assumption provided by the UNJSPF. The consequence of this modeling is that the salary mass evolution is indexed on inflation.



### 5.3. Scenarios

The **central scenario** was set with the assumptions presented above, and the 2018-2021 claims reimbursements curve.

The following sensitivity scenarios were performed:

- **Scenario 1:** 3.5% rate of return on investments.
- **Scenario 2:** 2021 claims reimbursements curve.
- **Scenario 3:** medical inflation +50 bps.
- **Scenario 4:** 10% depreciation of USD compared to EUR and CHF.

In addition, we have estimated the contributions increase (in %) from 2024 needed to reach the mid statutory reserve as at 31.12.2032:

- **Scenario 5: for Central Scenario** (i.e. 2018-2021 claims reimbursements curve), a 5% increase of contributions is required.
- **Scenario 6: for Scenario 2** (i.e. 2021 claims reimbursements curve), 19% increase of contributions is required.

*To be noticed: except for scenario 6, only one assumption is changed, the others remained unchanged.*

In this study, we analyse the impact of the different scenarios on the two indicators:

- Year of the first deficit (i.e. claims reimbursements exceed employees and employer contributions).
- Year when net assets are fully consumed.

Once projections are done for the sensitivities, we compare the two key years with the ones of the central scenario.

## 6. Results

### 6.1. Central scenario

#### *Actives and retirees headcounts*

The table below present the evolution of headcount and age of the actives and inactives:

- As decided in the assumptions, the total number of actives remain constant over the projection: the active staff who left because of the withdrawal assumption, retirement or death, are replaced exactly by new entrants.
- The number of retirees increases over the projection as the mortality rates do not offset the retirement rates.

		2022	2023	2024	2025	2026	2027
Active staff members	Headcount	3 899	3 899	3 899	3 899	3 899	3 899
	Average age	45.9	46.0	46.1	46.3	46.5	46.8
Inactive members	Headcount	2 317	2 384	2 430	2 462	2 491	2 510
	Average age	75.7	75.6	75.7	75.8	75.9	76.1
Ratio of retirees over active staff members		59%	61%	62%	63%	64%	64%

		2028	2029	2030	2031	2032
Active staff members	Headcount	3 899	3 899	3 899	3 899	3 899
	Average age	47.0	47.2	47.3	47.5	47.6
Inactive members	Headcount	2 535	2 549	2 576	2 594	2 608
	Average age	76.1	76.3	76.3	76.4	76.5
Ratio of retirees over active staff members		59%	65%	65%	66%	67%

#### *Main financial assumptions*

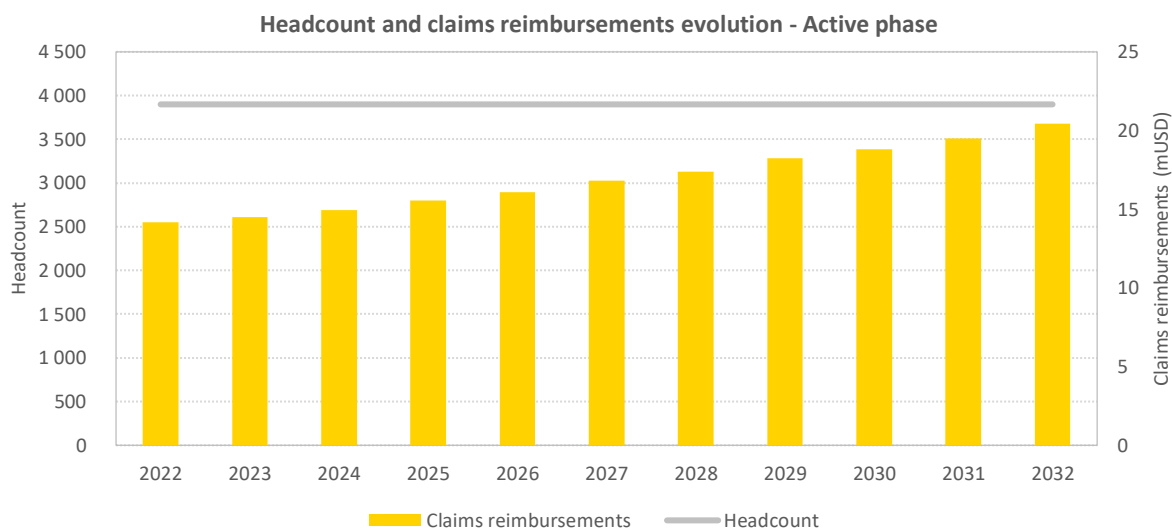
Assumption	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Inflation rate	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Medical inflation	3.20%	3.10%	3.00%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Rate of return on investments	-10,69%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%



### Projection of headcounts and claims reimbursements

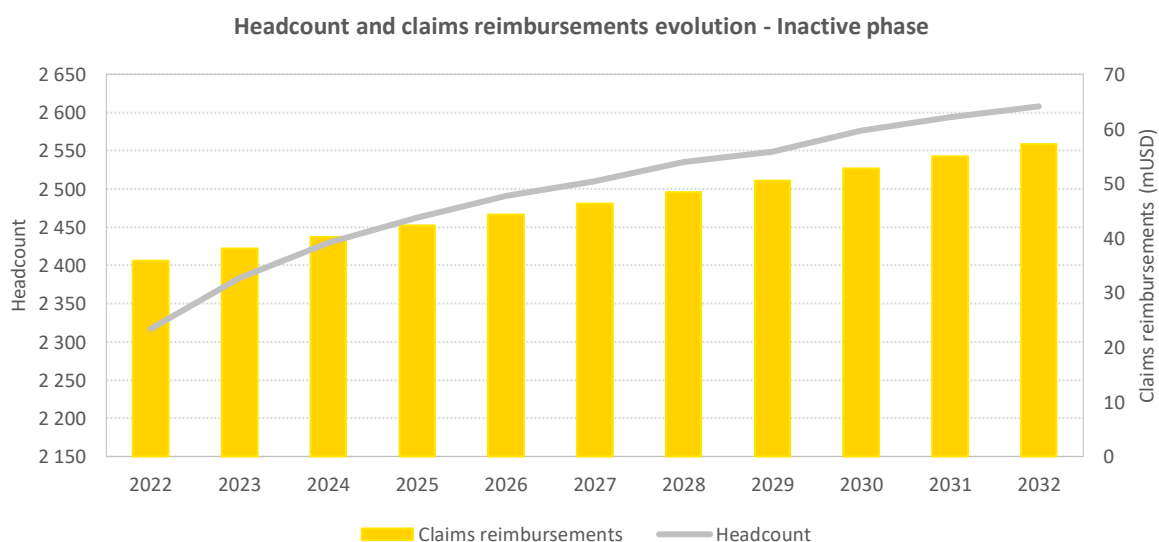
The chart below presents the development of the claims reimbursements and headcounts related to the active phase of the population:

- Their claims reimbursements increase slightly over the years due to the increase of their age and is partially offset by the new entrants, younger than the initial population as at December 31, 2021.



The chart presents below the development of the claims reimbursements and headcounts related to the inactive phase of the population:

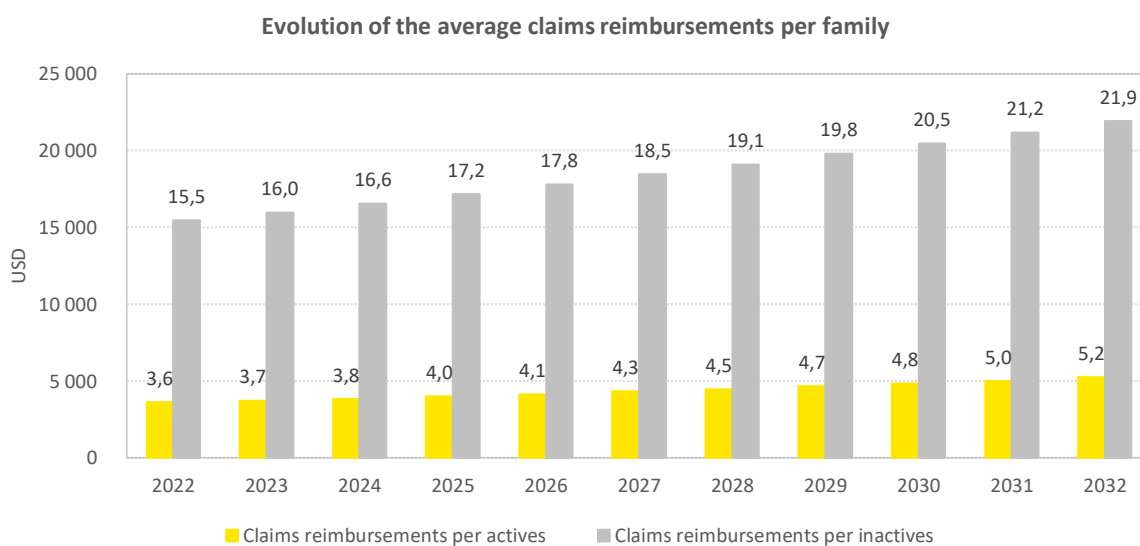
- Their claims reimbursements increase with the increase of the population.



### Projection of average claims reimbursements per family

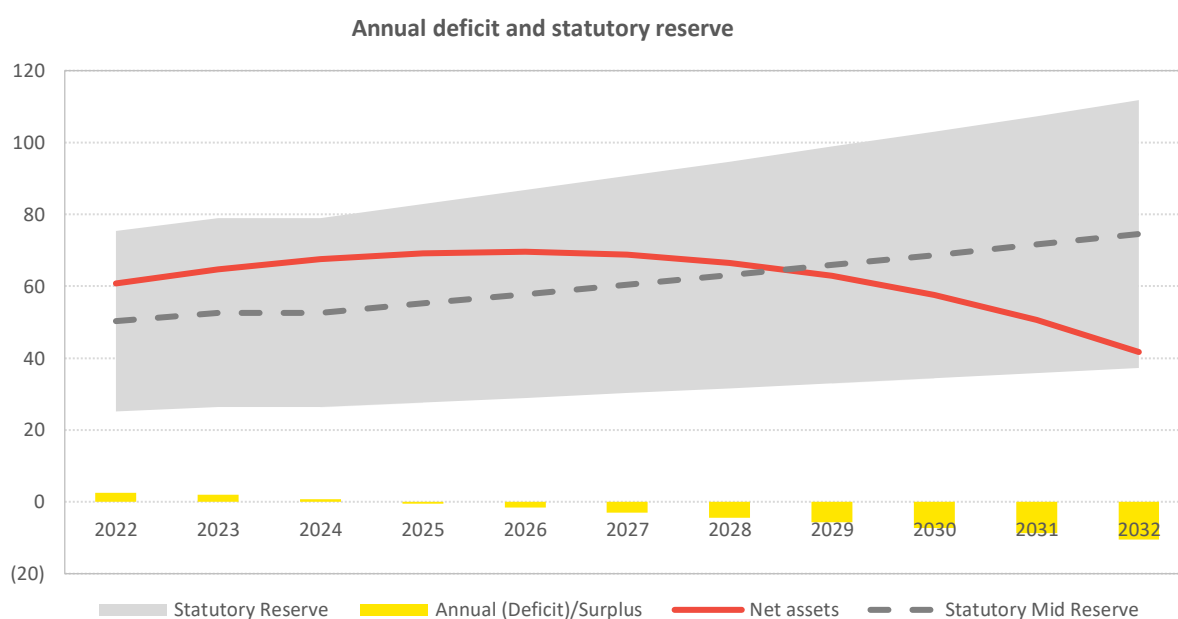
The chart presents the development of the average claims reimbursements per family for the active and inactive phases:

- Over the years, average claims reimbursements per family increases by 40-45% for both actives and inactives.
- This is mainly due to the aging population and the medical inflation.

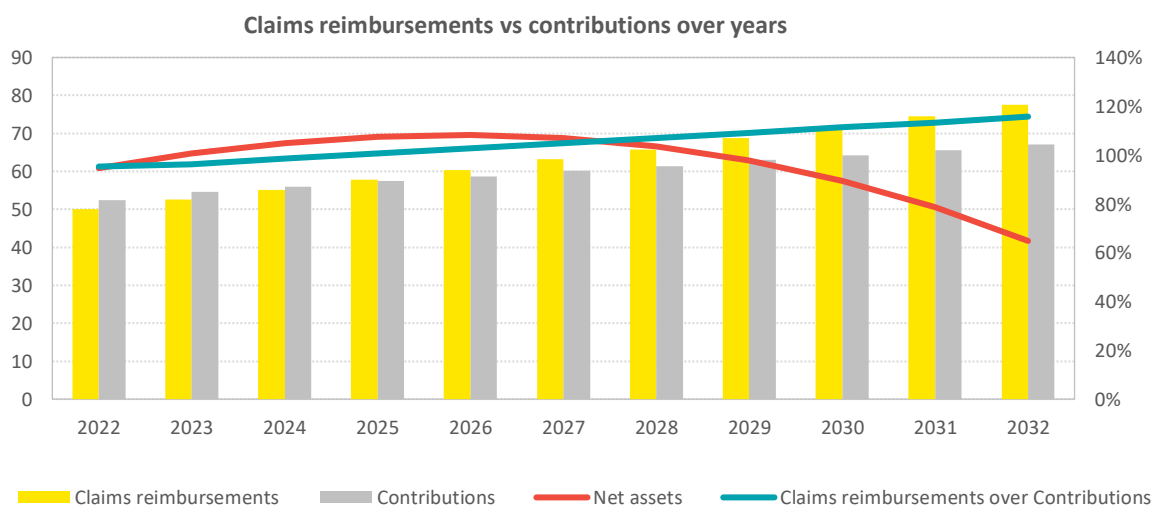


## Projection of net assets

The chart below presents the development of the cash-flow deficit or surplus, the evolution of the net assets and the statutory reserve over the projection years.



The chart below presents the development of the claims reimbursements and total contributions over the projection years, their loss ratio and the evolution of the net assets



### Key finding:

Total contributions fully fund the claims reimbursements until 2024.

From, 2025 onwards, the annual deficit increases progressively, mostly due to the medical inflation assumption that increases the claims reimbursements in a more sharply way than the inflation assumption increases the contributions.

### ***Evolution of the share of the gross claims reimbursements between actives and retirees***

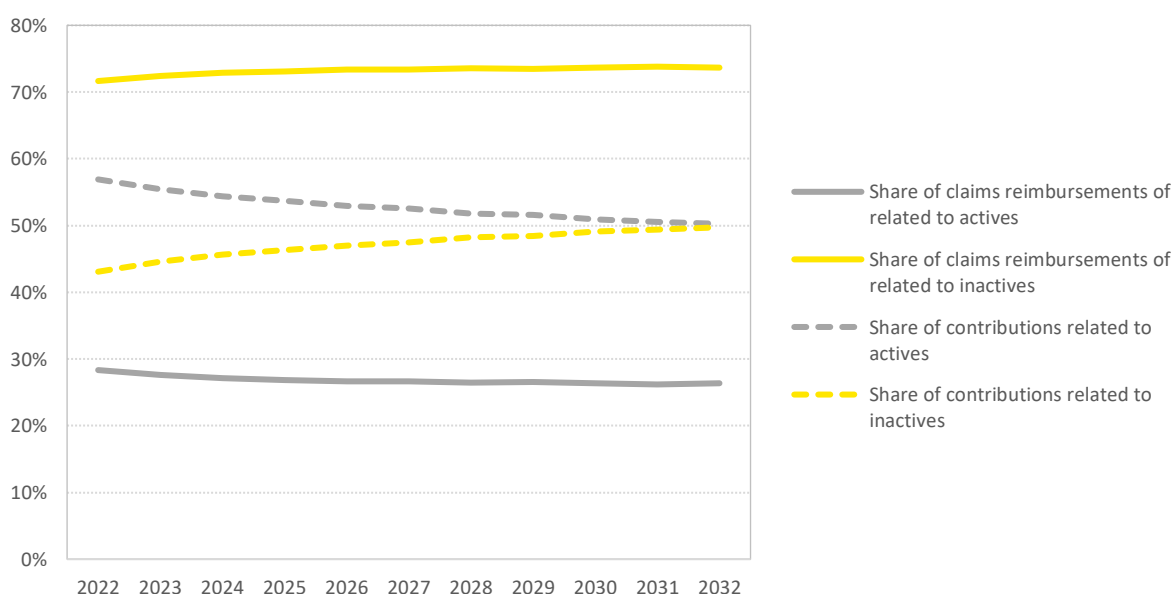
The chart presents the evolution of the share of claims reimbursements for the actives and the inactives:

- The starting point in 2022 is 28% for the actives and 72% for the retirees.
- In 2032, the share of the claims reimbursements is 26% for the actives and 74% for the retirees.
- The evolution is stable over the projection years.

The chart also presents the evolution of the share of contributions for the actives and the inactives:

- The starting point in 2022 is 57% for the actives and 43% for the retirees.
- The two curves converges to reach 50% each in 2032.

**Evolution of the split of the claims reimbursements and contributions between actives and inactives**



#### **Key finding:**

The share of claims reimbursements remains stable due to the similar increase in claims reimbursements of both populations.

The convergence of the curves related to contributions is due to the increasing share of the retiree population.

## 6.2. Scenario analyses - Overview

Scenario	Scenario description	Year of the first deficit (ie. claims reimbursements exceed total contributions)	Year when net assets are fully consumed	Net assets in 2032
Central	ROI 2.5%	2025	Not reached in the next 10 years	41.7 mSD
1	ROI 3.5%	2025 (+0 years)	Not reached in the next 10 years	51.1 mUSD
2	2021 claims reimbursements curve	2022 (-3 years)	2030	(35.3) mUSD
3	Medical inflation +50 bps	2025 (+0 years)	Not reached in the next 10 years	21.6 mUSD
4	Depreciation of USD of 10% compared to EUR and CHF	2022 (-3 years)	2031	(16.1) mUSD
5	Central scenario + 5% increase of contribution from 01.01.2024 to reach the statutory mid reverse as at 31.12.2032	2028 (+3 years)	Not reached in the next 10 years	74.5 mUSD
6	Scenario 2 + 19% increase of contribution from 01.01.2024 to reach the statutory mid reverse as at 31.12.2032	2022 & 2029 (-3 years & +4 years) (*)	Not reached in the next 10 years	82.6 mUSD

(\*) Deficit until 2023, surplus from 2024 to 2028, and then deficit

## 6.3. Sensitivities analyses

### Scenario 1: 3.5% return on interests

Main financial assumptions:

Assumption	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Inflation rate	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Medical inflation	3.20%	3.10%	3.00%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Rate of return on investments	-10,69%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%

The chart presents the evolution of the (deficit)/surplus and the net assets of the central and sensitivity scenarios.

Year of the first deficit:

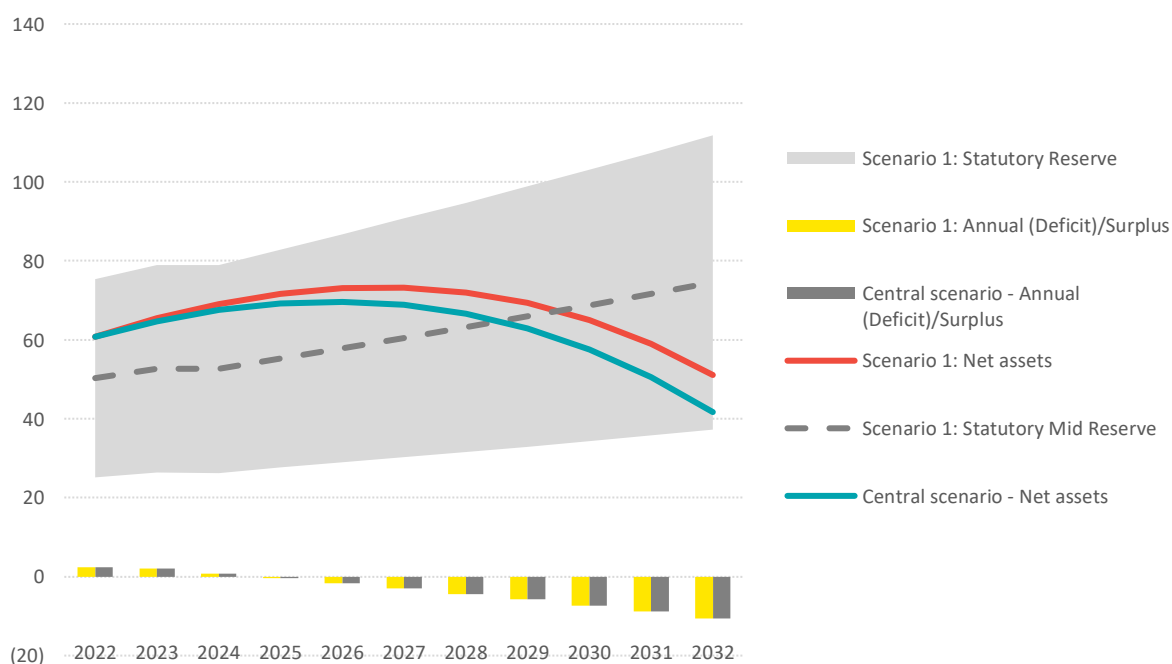
- Central scenario: 2025
- Scenario 1: 2025

Year when net assets are fully consumed

- Central scenario: Not reached in the next 10 years
- Scenario 1: Not reached in the next 10 years

Net assets in 2032:

- Central scenario: 41.7 mUSD
- Scenario 1: 51.1 mUSD



**Key finding:**

The increase of 100 bps per year of the return on interest has an impact c.1 mUSD per year.  
In 2032, it has an cumulated impact of c. 10 mUSD on the net assets.

## Scenario 2: 2021 claims reimbursements curve

Main financial assumptions:

Assumption	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Inflation rate	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Medical inflation	3.20%	3.10%	3.00%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Rate of return on investments	-4,69%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%

The chart presents the evolution of the (deficit)/surplus and the net assets of the central and sensitivity scenarios

Year of the first deficit:

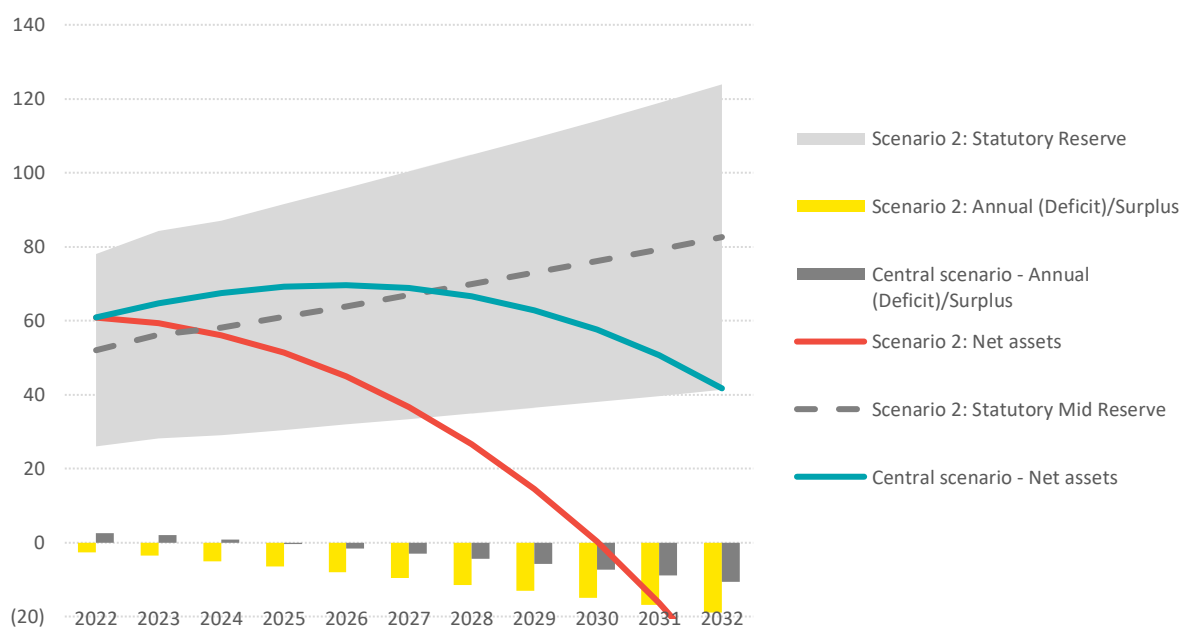
- Central scenario: 2025
- Scenario 2: 2022

Year when net assets are fully consumed

- Central scenario: Not reached in the next 10 years
- Scenario 2: 2030

Net assets in 2032:

- Central scenario: 41.7 mUSD
- Scenario 2: (35.3) mUSD





**Key finding:**

The 2021 medical claims reimbursements curve generates higher reimbursements than the 2018-2021 medical claims reimbursements curve.

This leads to a higher deficit over the time horizon and to negative net assets reached in 8 years.

It shows that the actual contributions are not sufficient to cover the cumulated deficit. If this scenario would become realistic in the next couple of years, contributions should be increased.

### Scenario 3: Medical inflation +50 bps

Main financial assumptions:

Assumption	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Inflation rate	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Medical inflation	3.70%	3.60%	3.50%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%
Rate of return on investments	-10,69%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%

The chart presents the evolution of the (deficit)/surplus and the net assets of the central and sensitivity scenarios.

Year of the first deficit:

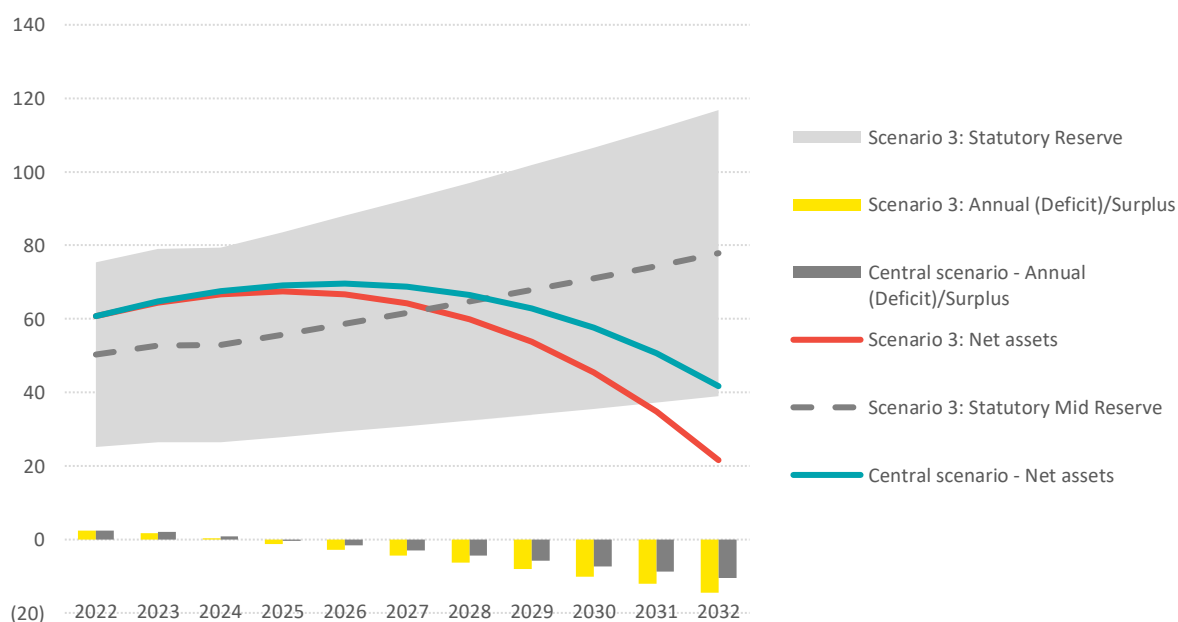
- Central scenario: 2025
- Scenario 3: 2025

Year when net assets are fully consumed

- Central scenario: Not reached in the next 10 years
- Scenario 3: Not reached in the next 10 years

Net assets in 2032:

- Central scenario: 41.7 mUSD
- Scenario 3: 21.6 mUSD



**Key finding:**

The higher the medical inflation is, the higher the benefits payments are and the higher the deficit becomes over the time horizon.

This leads to a decrease of the net assets over years. Even though net assets are not fully consumed over a 10-year horizon, they are below the minimum statutory reserve, which will be reached in 2031.

#### Scenario 4: 10% depreciation of USD compared to EUR and CHF

Main financial assumptions:

Assumption	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Inflation rate	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Medical inflation	3.20%	3.10%	3.00%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Rate of return on investments	-6,06%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%

The chart presents the evolution of the (deficit)/surplus and the net assets of the central and sensitivity scenarios

Year of the first deficit:

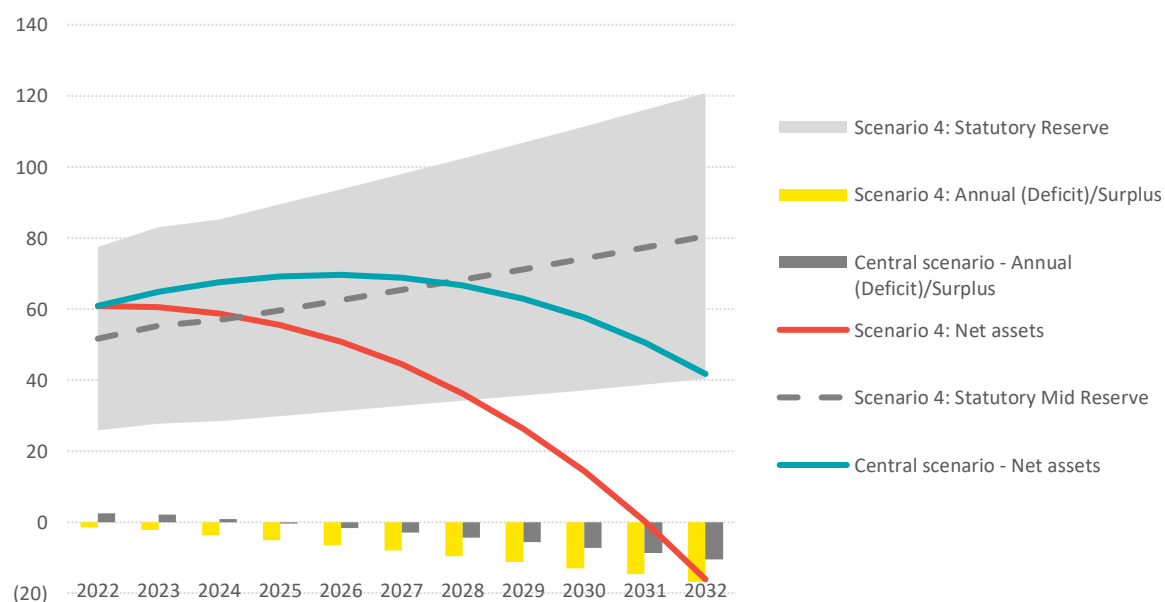
- Central scenario: **2025**
- Scenario 4: **2022**

Year when net assets are fully consumed

- Central scenario: **Not reached in the next 10 years**
- Scenario 4: **2031**

Net assets in 2032:

- Central scenario: **41.7 mUSD**
- Scenario 4: **(16.1) mUSD**



**Key finding:**

The value of currency has a significant impact on results.

The lower is the USD compared to EUR and CHF, the higher the total claims reimbursements is.

The studied scenario leads to a higher deficit over the time horizon and to negative net assets reached in 9 years.

The minimum statutory reserve will be reached in 2028.

**Scenario 5: central scenario (i.e. 2018-2021 claims reimbursements curve) + 5% increase of contribution from 01.01.2024 to reach the statutory mid reverse as at 31.12.2032**

Main financial assumptions:

Assumption	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Inflation rate	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Medical inflation	3.20%	3.10%	3.00%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Rate of return on investments	-10,69%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%

The chart presents the evolution of the (deficit)/surplus and the net assets of the central and sensitivity scenarios.

Year of the first deficit:

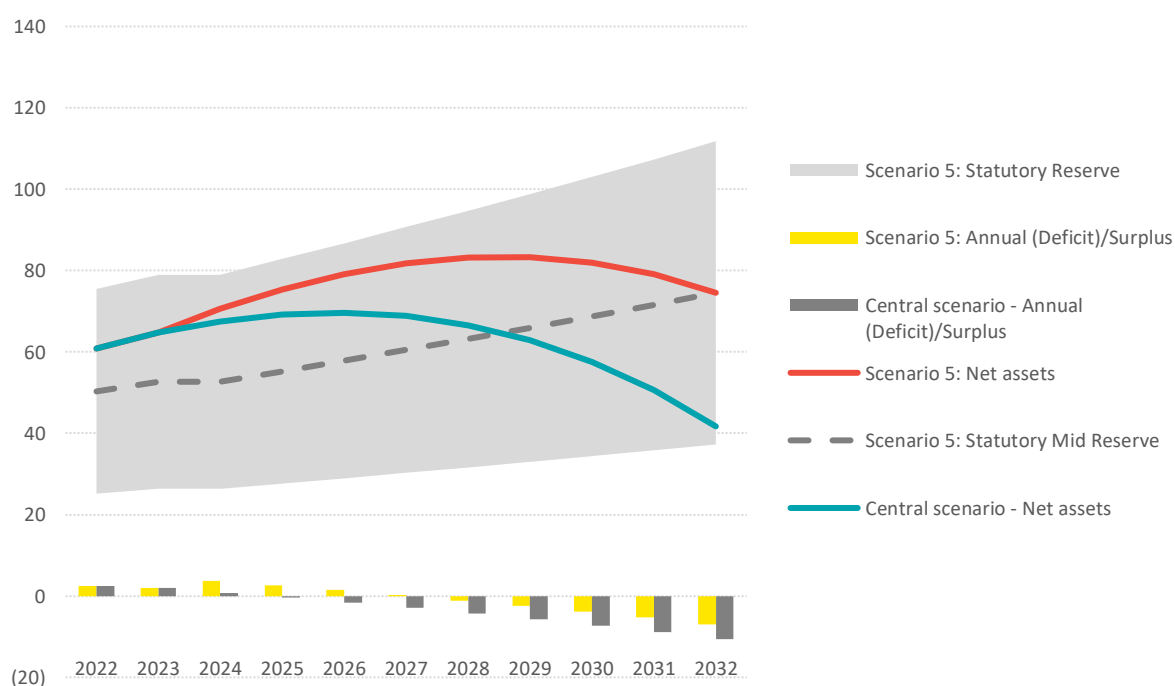
- Central scenario: 2025
- Scenario 5: 2028

Year when net assets are fully consumed

- Central scenario: **Not reached in the next 10 years**
- Scenario 5: **Not reached in the next 10 years**

Net assets in 2032:

- Central scenario: **41.7 mUSD**
- Scenario 5: **74.5 mUSD**



**Key finding:**

The higher the contribution rates are, the higher the inflows are and the lower the deficit becomes over the time horizon.

A 5% increase of the contributions from 01.01.2024 enables to reach the statutory mid reserve as at 31.12.2032.

**Scenario 6: scenario 2 (i.e. 2021 claims reimbursements curve) + 19% increase of contribution from 01.01.2024 to reach the statutory mid reserve as at 31.12.2032**

Main financial assumptions:

Assumption	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Inflation rate	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Medical inflation	3.20%	3.10%	3.00%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Rate of return on investments	-4,69%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%

The chart presents the evolution of the (deficit)/surplus and the net assets of the central and sensitivity scenarios.

Year of the first deficit:

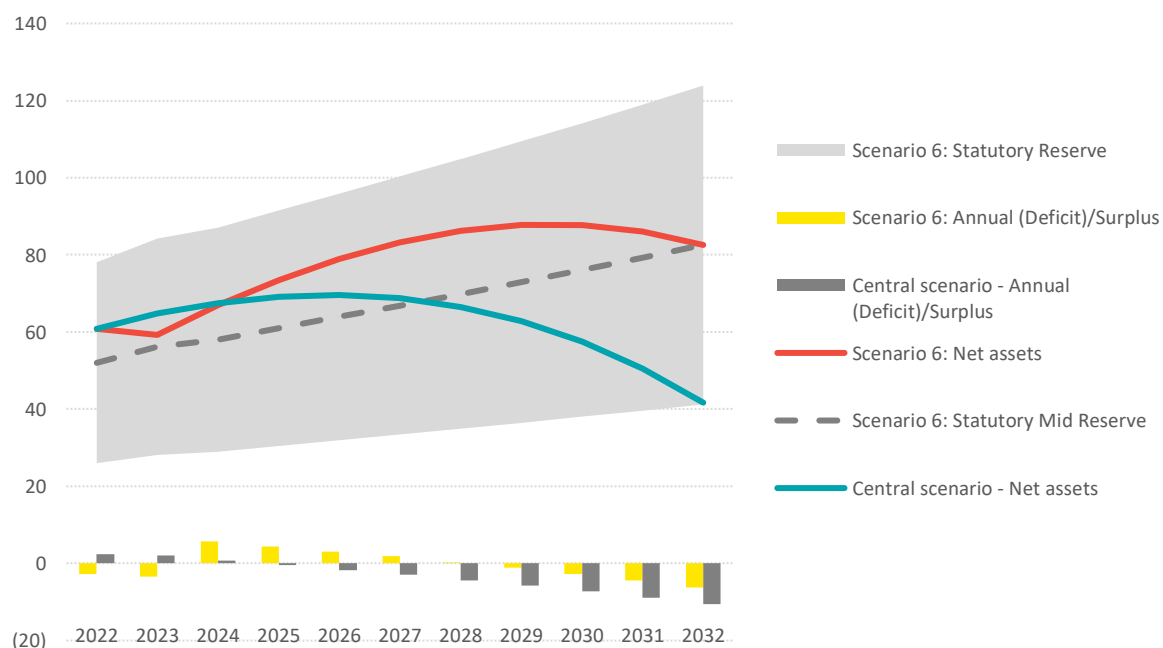
- Central scenario: 2025
- Scenario 6: 2022 & 2029

Year when net assets are fully consumed

- Central scenario: **Not reached in the next 10 years**
- Scenario 6: **Not reached in the next 10 years**

Net assets in 2032:

- Central scenario: **41.7 mUSD**
- Scenario 6: **82.6 mUSD**





**Key finding:**

The higher the contribution rates are, the higher the inflows are and the lower the deficit becomes over the time horizon.

Considering the application of the 2021 medical claims reimbursements curve, an increase of 19% of the contributions from 01.01.2024 is needed to reach the statutory mid reserve as at 31.12.2032.



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# Appendix 1: Detailed results

## Central scenario

**Projection of the number of SHIF members**  
(beginning of each year)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members											
Total	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899
Average age	45,9	46,0	46,1	46,3	46,5	46,8	47,0	47,2	47,3	47,5	47,6
B- Retirees, disabled and surviving spouses											
Total	2 317	2 384	2 430	2 462	2 491	2 510	2 535	2 549	2 576	2 594	2 608
Average age	75,7	75,6	75,7	75,8	75,9	76,1	76,1	76,3	76,3	76,4	76,5
C- All members combined											
Total	6 216	6 283	6 329	6 361	6 390	6 409	6 434	6 448	6 475	6 493	6 507
D- Ratio of retirees over active staff members	0,59	0,61	0,62	0,63	0,64	0,64	0,65	0,65	0,66	0,67	0,67

**Projection of total annual contributions**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	29 861	29 819	29 959	30 351	30 634	31 133	31 304	31 952	32 188	32 650	33 132
B- Retirees, disabled and surviving spouses	22 605	24 788	25 993	27 047	28 106	29 081	30 139	31 016	32 063	32 981	33 908
C- All members combined	52 466	54 607	55 953	57 398	58 740	60 215	61 444	62 969	64 252	65 630	67 040

**Projection of annual claims reimbursements by the SHIF**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	14 174	14 501	14 950	15 540	16 091	16 823	17 396	18 239	18 828	19 495	20 431
B- Retirees, disabled and surviving spouses	35 837	38 101	40 244	42 299	44 333	46 327	48 422	50 477	52 710	54 941	57 189
C- All members combined	50 011	52 602	55 194	57 839	60 423	63 150	65 818	68 717	71 538	74 436	77 621

**Average annual reimbursement rates**  
(in USD)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	3 635	3 719	3 834	3 986	4 127	4 315	4 462	4 678	4 829	5 000	5 240
B- Retirees, disabled and surviving spouses	15 467	15 982	16 561	17 181	17 797	18 457	19 101	19 803	20 462	21 180	21 928
C- All members combined	8 046	8 372	8 721	9 093	9 456	9 853	10 230	10 657	11 048	11 464	11 929

**Annual difference between claims reimbursements and contributions**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	15 687	15 318	15 009	14 811	14 544	14 310	13 908	13 713	13 360	13 154	12 700
B- Retirees, disabled and surviving spouses	-13 232	-13 312	-14 251	-15 252	-16 227	-17 246	-18 283	-19 461	-20 646	-21 960	-23 281
C- All members combined	2 455	2 005	759	-441	-1 683	-2 936	-4 375	-5 748	-7 286	-8 806	-10 581

**Projection of ratio of reimbursements over contributions**

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	0,47	0,49	0,50	0,51	0,53	0,54	0,56	0,57	0,58	0,60	0,62
B- Retirees, disabled and surviving spouses	1,59	1,54	1,55	1,56	1,58	1,59	1,61	1,63	1,64	1,67	1,69
C- All members combined	0,95	0,96	0,99	1,01	1,03	1,05	1,07	1,09	1,11	1,13	1,16

**Projection of Reserve Fund**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A - Gross assets as of 01.01.	82 525	75 422	80 057	83 560	85 920	87 121	87 067	85 619	82 722	78 217	72 141
B - Claims incurred but not received	15 200	14 597	15 316	16 050	16 767	17 524	18 265	19 069	19 852	20 656	21 540
C - Net assets as of 01.01.	67 325	60 825	64 741	67 510	69 153	69 597	68 803	66 550	62 871	57 561	50 601
D - Contributions	52 466	54 607	55 953	57 398	58 740	60 215	61 444	62 969	64 252	65 630	67 040
E - Investment income	-8 955	1 911	2 011	2 084	2 127	2 141	2 122	2 069	1 977	1 845	1 671
F - Claims reimbursements	50 011	52 602	55 194	57 839	60 423	63 150	65 818	68 717	71 538	74 436	77 621
G - Net assets as of 31.12. ( = C + D + E - F )	60 825	64 741	67 510	69 153	69 597	68 803	66 550	62 871	57 561	50 601	41 691
H - Total benefits paid during three preceding calendar years	150 875	157 842	157 807	165 634	173 456	181 412	189 392	197 685	206 073	214 691	223 595
I - Reserve Fund at 31.12. as % of average benefits paid during three preceding calendar years	120,9%	123,0%	128,3%	125,3%	120,4%	113,8%	105,4%	95,4%	83,8%	70,7%	55,9%
J - Minimum Reserve at 31.12. (50% of average annual benefits over three preceding calendar years)	25 146	26 307	26 301	27 606	28 909	30 235	31 565	32 948	34 345	35 782	37 266
K - Maximum Reserve at 31.12. (150% of average annual benefits over three preceding calendar years)	75 438	78 921	78 903	82 817	86 728	90 706	94 696	98 843	103 036	107 345	111 798
L - Amounts outside of the corridor at 31.12.	0	0	0	0	0	0	0	0	0	0	0
M - Mid Reserve at 31.12.	50 292	52 614	52 602	55 211	57 819	60 471	63 131	65 895	68 691	71 564	74 532

## Scenario 1: 3.5% return on interests

Projection of the number of SHIF members  
(beginning of each year)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members											
Total	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899
Average age	45,9	46,0	46,1	46,3	46,5	46,8	47,0	47,2	47,3	47,5	47,6
B- Retirees, disabled and surviving spouses											
Total	2 317	2 384	2 430	2 462	2 491	2 510	2 535	2 549	2 576	2 594	2 608
Average age	75,7	75,6	75,7	75,8	75,9	76,1	76,1	76,3	76,3	76,4	76,5
C- All members combined											
Total	6 216	6 283	6 329	6 361	6 390	6 409	6 434	6 448	6 475	6 493	6 507
D- Ratio of retirees over active staff members	0,59	0,61	0,62	0,63	0,64	0,64	0,65	0,65	0,66	0,67	0,67

Projection of total annual contributions  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	29 861	29 819	29 959	30 351	30 634	31 133	31 304	31 952	32 188	32 650	33 132
B- Retirees, disabled and surviving spouses	22 605	24 788	25 993	27 047	28 106	29 081	30 139	31 016	32 063	32 981	33 908
C- All members combined	52 466	54 607	55 953	57 398	58 740	60 215	61 444	62 969	64 252	65 630	67 040

Projection of annual claims reimbursements by the SHIF  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	14 174	14 501	14 950	15 540	16 091	16 823	17 396	18 239	18 828	19 495	20 431
B- Retirees, disabled and surviving spouses	35 837	38 101	40 244	42 299	44 333	46 327	48 422	50 477	52 710	54 941	57 189
C- All members combined	50 011	52 602	55 194	57 839	60 423	63 150	65 818	68 717	71 538	74 436	77 621

Average annual reimbursement rates  
(in USD)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	3 635	3 719	3 834	3 986	4 127	4 315	4 462	4 678	4 829	5 000	5 240
B- Retirees, disabled and surviving spouses	15 467	15 982	16 561	17 181	17 797	18 457	19 101	19 803	20 462	21 180	21 928
C- All members combined	8 046	8 372	8 721	9 093	9 456	9 853	10 230	10 657	11 048	11 464	11 929

**Annual difference between claims reimbursements and contributions**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	15 687	15 318	15 009	14 811	14 544	14 310	13 908	13 713	13 360	13 154	12 700
B- Retirees, disabled and surviving spouses	-13 232	-13 312	-14 251	-15 252	-16 227	-17 246	-18 283	-19 461	-20 646	-21 960	-23 281
C- All members combined	2 455	2 005	759	-441	-1 683	-2 936	-4 375	-5 748	-7 286	-8 806	-10 581

**Projection of ratio of reimbursements over contributions**

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	0,47	0,49	0,50	0,51	0,53	0,54	0,56	0,57	0,58	0,60	0,62
B- Retirees, disabled and surviving spouses	1,59	1,54	1,55	1,56	1,58	1,59	1,61	1,63	1,64	1,67	1,69
C- All members combined	0,95	0,96	0,99	1,01	1,03	1,05	1,07	1,09	1,11	1,13	1,16

**Projection of Reserve Fund**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A - Gross assets as of 01.01.	82 525	75 422	80 821	85 156	88 405	90 544	91 466	91 020	89 140	85 651	80 572
B - Claims incurred but not received	15 200	14 597	15 316	16 050	16 767	17 524	18 265	19 069	19 852	20 656	21 540
C - Net assets as of 01.01.	67 325	60 825	65 505	69 105	71 638	73 019	73 201	71 951	69 289	64 995	59 032
D - Contributions	52 466	54 607	55 953	57 398	58 740	60 215	61 444	62 969	64 252	65 630	67 040
E - Investment income	-8 955	2 675	2 842	2 973	3 065	3 118	3 125	3 085	2 992	2 844	2 635
F - Claims reimbursements	50 011	52 602	55 194	57 839	60 423	63 150	65 818	68 717	71 538	74 436	77 621
G - Net assets as of 31.12. ( = C + D + E - F )	60 825	65 505	69 105	71 638	73 019	73 201	71 951	69 289	64 995	59 032	51 087
H - Total benefits paid during three preceding calendar years	150 875	157 842	157 807	165 634	173 456	181 412	189 392	197 685	206 073	214 691	223 595
I - Reserve Fund at 31.12. as % of average benefits paid during three preceding calendar years	120,9%	124,5%	131,4%	129,8%	126,3%	121,1%	114,0%	105,1%	94,6%	82,5%	68,5%
J - Minimum Reserve at 31.12. (50% of average annual benefits over three preceding calendar years)	25 146	26 307	26 301	27 606	28 909	30 235	31 565	32 948	34 345	35 782	37 266
K - Maximum Reserve at 31.12. (150% of average annual benefits over three preceding calendar years)	75 438	78 921	78 903	82 817	86 728	90 706	94 696	98 843	103 036	107 345	111 798
L - Amounts outside of the corridor at 31.12.	0	0	0	0	0	0	0	0	0	0	0
M - Mid Reserve at 31.12.	50 292	52 614	52 602	55 211	57 819	60 471	63 131	65 895	68 691	71 564	74 532

## Scenario 2: 2021 claims reimbursements curve

Projection of the number of SHIF members  
(beginning of each year)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members											
Total	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899
Average age	45,9	46,0	46,1	46,3	46,5	46,8	47,0	47,2	47,3	47,5	47,6
B- Retirees, disabled and surviving spouses											
Total	2 317	2 384	2 430	2 462	2 491	2 510	2 535	2 549	2 576	2 594	2 608
Average age	75,7	75,6	75,7	75,8	75,9	76,1	76,1	76,3	76,3	76,4	76,5
C- All members combined											
Total	6 216	6 283	6 329	6 361	6 390	6 409	6 434	6 448	6 475	6 493	6 507
D- Ratio of retirees over active staff members	0,59	0,61	0,62	0,63	0,64	0,64	0,65	0,65	0,66	0,67	0,67

Projection of total annual contributions  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	29 861	29 819	29 959	30 351	30 634	31 133	31 304	31 952	32 188	32 650	33 132
B- Retirees, disabled and surviving spouses	22 605	24 788	25 993	27 047	28 106	29 081	30 139	31 016	32 063	32 981	33 908
C- All members combined	52 466	54 607	55 953	57 398	58 740	60 215	61 444	62 969	64 252	65 630	67 040

Projection of annual claims reimbursements by the SHIF  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	14 726	15 060	15 526	16 146	16 725	17 501	18 103	18 997	19 615	20 317	21 312
B- Retirees, disabled and surviving spouses	40 432	42 999	45 437	47 779	50 096	52 372	54 757	57 100	59 637	62 174	64 731
C- All members combined	55 157	58 059	60 963	63 925	66 822	69 873	72 860	76 098	79 252	82 491	86 043

Average annual reimbursement rates  
(in USD)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	3 777	3 862	3 982	4 141	4 290	4 488	4 643	4 872	5 031	5 211	5 466
B- Retirees, disabled and surviving spouses	17 450	18 037	18 698	19 407	20 111	20 865	21 601	22 401	23 151	23 968	24 820
C- All members combined	8 873	9 241	9 632	10 050	10 457	10 902	11 324	11 802	12 240	12 705	13 223



**Annual difference between claims reimbursements and contributions**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	15 135	14 759	14 433	14 205	13 909	13 633	13 202	12 955	12 574	12 333	11 820
B- Retirees, disabled and surviving spouses	-17 826	-18 211	-19 443	-20 732	-21 990	-23 291	-24 618	-26 084	-27 574	-29 193	-30 823
C- All members combined	-2 691	-3 452	-5 010	-6 527	-8 081	-9 658	-11 416	-13 129	-15 000	-16 860	-19 003

**Projection of ratio of reimbursements over contributions**

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	0,49	0,51	0,52	0,53	0,55	0,56	0,58	0,59	0,61	0,62	0,64
B- Retirees, disabled and surviving spouses	1,79	1,73	1,75	1,77	1,78	1,80	1,82	1,84	1,86	1,89	1,91
C- All members combined	1,05	1,06	1,09	1,11	1,14	1,16	1,19	1,21	1,23	1,26	1,28

**Projection of Reserve Fund**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A - Gross assets as of 01.01.	82 525	76 936	76 170	73 824	69 865	64 276	56 933	47 696	36 470	23 093	7 585
B - Claims incurred but not received	15 200	16 111	16 917	17 739	18 543	19 390	20 219	21 117	21 992	22 891	23 877
C - Net assets as of 01.01.	67 325	60 825	59 253	56 085	51 322	44 886	36 714	26 579	14 478	202	-16 292
D - Contributions	52 466	54 607	55 953	57 398	58 740	60 215	61 444	62 969	64 252	65 630	67 040
E - Investment income	-3 809	1 880	1 842	1 764	1 646	1 486	1 281	1 028	724	367	-48
F - Claims reimbursements	55 157	58 059	60 963	63 925	66 822	69 873	72 860	76 098	79 252	82 491	86 043
G - Net assets as of 31.12. ( = C + D + E - F )	60 825	59 253	56 085	51 322	44 886	36 714	26 579	14 478	202	-16 292	-35 343
H - Total benefits paid during three preceding calendar years	156 022	168 445	174 179	182 946	191 709	200 619	209 554	218 831	228 210	237 840	247 786
I - Reserve Fund at 31.12. as % of average benefits paid during three preceding calendar years	117,0%	105,5%	96,6%	84,2%	70,2%	54,9%	38,1%	19,8%	0,3%	-20,5%	-42,8%
J - Minimum Reserve at 31.12. (50% of average annual benefits over three preceding calendar years)	26 004	28 074	29 030	30 491	31 952	33 437	34 926	36 472	38 035	39 640	41 298
K - Maximum Reserve at 31.12. (150% of average annual benefits over three preceding calendar years)	78 011	84 223	87 089	91 473	95 855	100 310	104 777	109 415	114 105	118 920	123 893
L - Amounts outside of the corridor at 31.12.	0	0	0	0	0	0	-8 347	-21 994	-37 833	-55 932	-76 641
M - Mid Reserve at 31.12.	52 007	56 148	58 060	60 982	63 903	66 873	69 851	72 944	76 070	79 280	82 595

## Scenario 3: Medical inflation +50 bps

Projection of the number of SHIF members  
(beginning of each year)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members											
Total	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899
Average age	45,9	46,0	46,1	46,3	46,5	46,8	47,0	47,2	47,3	47,5	47,6
B- Retirees, disabled and surviving spouses											
Total	2 317	2 384	2 430	2 462	2 491	2 510	2 535	2 549	2 576	2 594	2 608
Average age	75,7	75,6	75,7	75,8	75,9	76,1	76,1	76,3	76,3	76,4	76,5
C- All members combined											
Total	6 216	6 283	6 329	6 361	6 390	6 409	6 434	6 448	6 475	6 493	6 507
D- Ratio of retirees over active staff members	0,59	0,61	0,62	0,63	0,64	0,64	0,65	0,65	0,66	0,67	0,67

Projection of total annual contributions  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	29 861	29 819	29 959	30 351	30 634	31 133	31 304	31 952	32 188	32 650	33 132
B- Retirees, disabled and surviving spouses	22 605	24 788	25 993	27 047	28 106	29 081	30 139	31 016	32 063	32 981	33 908
C- All members combined	52 466	54 607	55 953	57 398	58 740	60 215	61 444	62 969	64 252	65 630	67 040

Projection of annual claims reimbursements by the SHIF  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	14 174	14 571	15 095	15 767	16 405	17 235	17 909	18 868	19 572	20 364	21 446
B- Retirees, disabled and surviving spouses	35 837	38 285	40 635	42 917	45 199	47 463	49 850	52 218	54 793	57 389	60 028
C- All members combined	50 011	52 857	55 730	58 684	61 605	64 698	67 759	71 086	74 365	77 753	81 474

Average annual reimbursement rates  
(in USD)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	3 635	3 737	3 872	4 044	4 208	4 420	4 593	4 839	5 020	5 223	5 500
B- Retirees, disabled and surviving spouses	15 467	16 059	16 722	17 432	18 145	18 909	19 665	20 486	21 270	22 124	23 017
C- All members combined	8 046	8 413	8 806	9 226	9 641	10 095	10 531	11 025	11 485	11 975	12 521

**Annual difference between claims reimbursements and contributions**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	15 687	15 247	14 864	14 584	14 229	13 898	13 395	13 084	12 616	12 286	11 686
B- Retirees, disabled and surviving spouses	-13 232	-13 497	-14 642	-15 870	-17 093	-18 381	-19 710	-21 202	-22 729	-24 409	-26 120
C- All members combined	2 455	1 750	222	-1 286	-2 864	-4 483	-6 315	-8 118	-10 113	-12 123	-14 434

**Projection of ratio of reimbursements over contributions**

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	0,47	0,49	0,50	0,52	0,54	0,55	0,57	0,59	0,61	0,62	0,65
B- Retirees, disabled and surviving spouses	1,59	1,54	1,56	1,59	1,61	1,63	1,65	1,68	1,71	1,74	1,77
C- All members combined	0,95	0,97	1,00	1,02	1,05	1,07	1,10	1,13	1,16	1,18	1,22

**Projection of Reserve Fund**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A - Gross assets as of 01.01.	82 525	75 492	79 950	82 993	84 576	84 649	83 075	79 681	74 364	66 924	57 355
B - Claims incurred but not received	15 200	14 668	15 465	16 285	17 095	17 954	18 803	19 726	20 636	21 577	22 609
C - Net assets as of 01.01.	67 325	60 825	64 484	66 708	67 481	66 695	64 272	59 955	53 728	45 348	34 746
D - Contributions	52 466	54 607	55 953	57 398	58 740	60 215	61 444	62 969	64 252	65 630	67 040
E - Investment income	-8 955	1 909	2 002	2 059	2 079	2 060	1 998	1 891	1 733	1 522	1 253
F - Claims reimbursements	50 011	52 857	55 730	58 684	61 605	64 698	67 759	71 086	74 365	77 753	81 474
G - Net assets as of 31.12. ( = C + D + E - F )	60 825	64 484	66 708	67 481	66 695	64 272	59 955	53 728	45 348	34 746	21 566
H - Total benefits paid during three preceding calendar years	150 875	158 097	158 598	167 271	176 019	184 987	194 061	203 543	213 210	223 204	233 592
I - Reserve Fund at 31.12. as % of average benefits paid during three preceding calendar years	120,9%	122,4%	126,2%	121,0%	113,7%	104,2%	92,7%	79,2%	63,8%	46,7%	27,7%
J - Minimum Reserve at 31.12. (50% of average annual benefits over three preceding calendar years)	25 146	26 349	26 433	27 879	29 337	30 831	32 344	33 924	35 535	37 201	38 932
K - Maximum Reserve at 31.12. (150% of average annual benefits over three preceding calendar years)	75 438	79 048	79 299	83 636	88 010	92 493	97 031	101 771	106 605	111 602	116 796
L - Amounts outside of the corridor at 31.12.	0	0	0	0	0	0	0	0	0	-2 454	-17 366
M - Mid Reserve at 31.12.	50 292	52 699	52 866	55 757	58 673	61 662	64 687	67 848	71 070	74 401	77 864

## Scenario 4: 10% depreciation of USD compared to EUR and CHF

Projection of the number of SHIF members  
(beginning of each year)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members											
Total	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899
Average age	45,9	46,0	46,1	46,3	46,5	46,8	47,0	47,2	47,3	47,5	47,6
B- Retirees, disabled and surviving spouses											
Total	2 317	2 384	2 430	2 462	2 491	2 510	2 535	2 549	2 576	2 594	2 608
Average age	75,7	75,6	75,7	75,8	75,9	76,1	76,1	76,3	76,3	76,4	76,5
C- All members combined											
Total	6 216	6 283	6 329	6 361	6 390	6 409	6 434	6 448	6 475	6 493	6 507
D- Ratio of retirees over active staff members	0,59	0,61	0,62	0,63	0,64	0,64	0,65	0,65	0,66	0,67	0,67

Projection of total annual contributions  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	29 861	29 819	29 959	30 351	30 634	31 133	31 304	31 952	32 188	32 650	33 132
B- Retirees, disabled and surviving spouses	22 605	24 788	25 993	27 047	28 106	29 081	30 139	31 016	32 063	32 981	33 908
C- All members combined	52 466	54 607	55 953	57 398	58 740	60 215	61 444	62 969	64 252	65 630	67 040

Projection of annual claims reimbursements by the SHIF  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	15 308	15 661	16 146	16 783	17 378	18 169	18 788	19 698	20 335	21 055	22 066
B- Retirees, disabled and surviving spouses	38 704	41 149	43 464	45 683	47 879	50 034	52 296	54 515	56 927	59 336	61 764
C- All members combined	54 012	56 810	59 610	62 466	65 257	68 202	71 084	74 214	77 261	80 391	83 830

Average annual reimbursement rates  
(in USD)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	3 926	4 017	4 141	4 304	4 457	4 660	4 819	5 052	5 215	5 400	5 659
B- Retirees, disabled and surviving spouses	16 704	17 260	17 886	18 555	19 221	19 934	20 630	21 387	22 099	22 874	23 683
C- All members combined	8 689	9 042	9 418	9 820	10 212	10 642	11 048	11 510	11 932	12 381	12 883

**Annual difference between claims reimbursements and contributions**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	14 553	14 158	13 813	13 568	13 256	12 965	12 516	12 254	11 854	11 595	11 066
B- Retirees, disabled and surviving spouses	-16 099	-16 361	-17 470	-18 636	-19 773	-20 952	-22 156	-23 499	-24 863	-26 356	-27 856
C- All members combined	-1 546	-2 203	-3 657	-5 068	-6 517	-7 988	-9 640	-11 245	-13 009	-14 761	-16 790

**Projection of ratio of reimbursements over contributions**

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	0,51	0,53	0,54	0,55	0,57	0,58	0,60	0,62	0,63	0,64	0,67
B- Retirees, disabled and surviving spouses	1,71	1,66	1,67	1,69	1,70	1,72	1,74	1,76	1,78	1,80	1,82
C- All members combined	1,03	1,04	1,07	1,09	1,11	1,13	1,16	1,18	1,20	1,22	1,25

**Projection of Reserve Fund**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A - Gross assets as of 01.01.	82 525	76 589	77 051	76 067	73 612	69 671	64 125	56 836	47 717	36 607	23 531
B - Claims incurred but not received	15 200	15 765	16 542	17 334	18 109	18 926	19 726	20 594	21 440	22 309	23 263
C - Net assets as of 01.01.	67 325	60 825	60 509	58 733	55 503	50 745	44 399	36 242	26 277	14 298	268
D - Contributions	52 466	54 607	55 953	57 398	58 740	60 215	61 444	62 969	64 252	65 630	67 040
E - Investment income	-4 954	1 887	1 881	1 838	1 759	1 642	1 483	1 280	1 030	731	378
F - Claims reimbursements	54 012	56 810	59 610	62 466	65 257	68 202	71 084	74 214	77 261	80 391	83 830
G - Net assets as of 31.12. ( = C + D + E - F )	60 825	60 509	58 733	55 503	50 745	44 399	36 242	26 277	14 298	268	-16 144
H - Total benefits paid during three preceding calendar years	154 876	166 051	170 431	178 885	187 333	195 925	204 543	213 500	222 559	231 866	241 483
I - Reserve Fund at 31.12. as % of average benefits paid during three preceding calendar years	117,8%	109,3%	103,4%	93,1%	81,3%	68,0%	53,2%	36,9%	19,3%	0,3%	-20,1%
J - Minimum Reserve at 31.12. (50% of average annual benefits over three preceding calendar years)	25 813	27 675	28 405	29 814	31 222	32 654	34 091	35 583	37 093	38 644	40 247
K - Maximum Reserve at 31.12. (150% of average annual benefits over three preceding calendar years)	77 438	83 025	85 216	89 443	93 666	97 963	102 272	106 750	111 279	115 933	120 741
L - Amounts outside of the corridor at 31.12.	0	0	0	0	0	0	0	-9 306	-22 795	-38 376	-56 391
M - Mid Reserve at 31.12.	51 625	55 350	56 810	59 628	62 444	65 308	68 181	71 167	74 186	77 289	80 494

## Scenario 5: central scenario + 5% increase of contribution from 01.01.2024 to reach the statutory mid reverse as at 31.12.2032

Projection of the number of SHIF members  
(beginning of each year)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members											
Total	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899
Average age	45,9	46,0	46,1	46,3	46,5	46,8	47,0	47,2	47,3	47,5	47,6
B- Retirees, disabled and surviving spouses											
Total	2 317	2 384	2 430	2 462	2 491	2 510	2 535	2 549	2 576	2 594	2 608
Average age	75,7	75,6	75,7	75,8	75,9	76,1	76,1	76,3	76,3	76,4	76,5
C- All members combined											
Total	6 216	6 283	6 329	6 361	6 390	6 409	6 434	6 448	6 475	6 493	6 507
D- Ratio of retirees over active staff members											
	0,59	0,61	0,62	0,63	0,64	0,64	0,65	0,65	0,66	0,67	0,67

Projection of total annual contributions  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	29 861	29 819	31 552	31 965	32 263	32 788	32 969	33 651	33 900	34 385	34 893
B- Retirees, disabled and surviving spouses	22 605	24 788	27 375	28 485	29 600	30 627	31 742	32 665	33 768	34 734	35 711
C- All members combined	52 466	54 607	58 927	60 450	61 863	63 416	64 710	66 316	67 668	69 120	70 604

Projection of annual claims reimbursements by the SHIF  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	14 174	14 501	14 950	15 540	16 091	16 823	17 396	18 239	18 828	19 495	20 431
B- Retirees, disabled and surviving spouses	35 837	38 101	40 244	42 299	44 333	46 327	48 422	50 477	52 710	54 941	57 189
C- All members combined	50 011	52 602	55 194	57 839	60 423	63 150	65 818	68 717	71 538	74 436	77 621

Average annual reimbursement rates  
(in USD)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	3 635	3 719	3 834	3 986	4 127	4 315	4 462	4 678	4 829	5 000	5 240
B- Retirees, disabled and surviving spouses	15 467	15 982	16 561	17 181	17 797	18 457	19 101	19 803	20 462	21 180	21 928
C- All members combined	8 046	8 372	8 721	9 093	9 456	9 853	10 230	10 657	11 048	11 464	11 929

**Annual difference between claims reimbursements and contributions**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	15 687	15 318	16 602	16 425	16 172	15 966	15 572	15 412	15 071	14 890	14 462
B- Retirees, disabled and surviving spouses	-13 232	-13 312	-12 869	-13 814	-14 732	-15 700	-16 680	-17 812	-18 942	-20 207	-21 478
C- All members combined	2 455	2 005	3 733	2 611	1 440	265	-1 108	-2 400	-3 871	-5 317	-7 017

**Projection of ratio of reimbursements over contributions**

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	0,47	0,49	0,47	0,49	0,50	0,51	0,53	0,54	0,56	0,57	0,59
B- Retirees, disabled and surviving spouses	1,59	1,54	1,47	1,48	1,50	1,51	1,53	1,55	1,56	1,58	1,60
C- All members combined	0,95	0,96	0,94	0,96	0,98	1,00	1,02	1,04	1,06	1,08	1,10

**Projection of Reserve Fund**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A - Gross assets as of 01.01.	82 525	75 422	80 057	86 572	92 097	96 614	100 039	102 222	103 131	102 594	100 660
B - Claims incurred but not received	15 200	14 597	15 316	16 050	16 767	17 524	18 265	19 069	19 852	20 656	21 540
C - Net assets as of 01.01.	67 325	60 825	64 741	70 522	75 330	79 090	81 774	83 153	83 279	81 938	79 120
D - Contributions	52 466	54 607	58 927	60 450	61 863	63 416	64 710	66 316	67 668	69 120	70 604
E - Investment income	-8 955	1 911	2 048	2 197	2 320	2 419	2 487	2 526	2 530	2 498	2 429
F - Claims reimbursements	50 011	52 602	55 194	57 839	60 423	63 150	65 818	68 717	71 538	74 436	77 621
G - Net assets as of 31.12. ( = C + D + E - F )	60 825	64 741	70 522	75 330	79 090	81 774	83 153	83 279	81 938	79 120	74 532
H - Total benefits paid during three preceding calendar years	150 875	157 842	157 807	165 634	173 456	181 412	189 392	197 685	206 073	214 691	223 595
I - Reserve Fund at 31.12. as % of average benefits paid during three preceding calendar years	120,9%	123,0%	134,1%	136,4%	136,8%	135,2%	131,7%	126,4%	119,3%	110,6%	100,0%
J - Minimum Reserve at 31.12. (50% of average annual benefits over three preceding calendar years)	25 146	26 307	26 301	27 606	28 909	30 235	31 565	32 948	34 345	35 782	37 266
K - Maximum Reserve at 31.12. (150% of average annual benefits over three preceding calendar years)	75 438	78 921	78 903	82 817	86 728	90 706	94 696	98 843	103 036	107 345	111 798
L - Amounts outside of the corridor at 31.12.	0	0	0	0	0	0	0	0	0	0	0
M - Mid Reserve at 31.12.	50 292	52 614	52 602	55 211	57 819	60 471	63 131	65 895	68 691	71 564	74 532

## Scenario 6: scenario 2 + 19% increase of contribution from 01.01.2024 to reach the statutory mid reverse as at 31.12.2032

Projection of the number of SHIF members  
(beginning of each year)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members											
Total	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899	3 899
Average age	45,9	46,0	46,1	46,3	46,5	46,8	47,0	47,2	47,3	47,5	47,6
B- Retirees, disabled and surviving spouses											
Total	2 317	2 384	2 430	2 462	2 491	2 510	2 535	2 549	2 576	2 594	2 608
Average age	75,7	75,6	75,7	75,8	75,9	76,1	76,1	76,3	76,3	76,4	76,5
C- All members combined											
Total	6 216	6 283	6 329	6 361	6 390	6 409	6 434	6 448	6 475	6 493	6 507
D- Ratio of retirees over active staff members	0,59	0,61	0,62	0,63	0,64	0,64	0,65	0,65	0,66	0,67	0,67

Projection of total annual contributions  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	29 861	29 819	35 679	36 146	36 483	37 077	37 281	38 053	38 334	38 883	39 457
B- Retirees, disabled and surviving spouses	22 605	24 788	30 956	32 211	33 472	34 634	35 894	36 938	38 185	39 278	40 382
C- All members combined	52 466	54 607	66 635	68 357	69 955	71 711	73 175	74 991	76 519	78 161	79 840

Projection of annual claims reimbursements by the SHIF  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	14 726	15 060	15 526	16 146	16 725	17 501	18 103	18 997	19 615	20 317	21 312
B- Retirees, disabled and surviving spouses	40 432	42 999	45 437	47 779	50 096	52 372	54 757	57 100	59 637	62 174	64 731
C- All members combined	55 157	58 059	60 963	63 925	66 822	69 873	72 860	76 098	79 252	82 491	86 043

Average annual reimbursement rates  
(in USD)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	3 777	3 862	3 982	4 141	4 290	4 488	4 643	4 872	5 031	5 211	5 466
B- Retirees, disabled and surviving spouses	17 450	18 037	18 698	19 407	20 111	20 865	21 601	22 401	23 151	23 968	24 820
C- All members combined	8 873	9 241	9 632	10 050	10 457	10 902	11 324	11 802	12 240	12 705	13 223



**Annual difference between claims reimbursements and contributions**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	15 135	14 759	20 153	20 000	19 758	19 577	19 178	19 055	18 719	18 566	18 145
B- Retirees, disabled and surviving spouses	-17 826	-18 211	-14 480	-15 568	-16 624	-17 739	-18 864	-20 162	-21 452	-22 896	-24 349
C- All members combined	-2 691	-3 452	5 673	4 432	3 134	1 838	315	-1 107	-2 733	-4 330	-6 204

**Projection of ratio of reimbursements over contributions**

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A- Active staff members	0,49	0,51	0,44	0,45	0,46	0,47	0,49	0,50	0,51	0,52	0,54
B- Retirees, disabled and surviving spouses	1,79	1,73	1,47	1,48	1,50	1,51	1,53	1,55	1,56	1,58	1,60
C- All members combined	1,05	1,06	0,91	0,94	0,96	0,97	1,00	1,01	1,04	1,06	1,08

**Projection of Reserve Fund**  
(in USD x 1,000)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A - Gross assets as of 01.01.	82 525	76 936	76 170	84 640	92 047	98 368	103 517	107 322	109 760	110 635	110 003
B - Claims incurred but not received	15 200	16 111	16 917	17 739	18 543	19 390	20 219	21 117	21 992	22 891	23 877
C - Net assets as of 01.01.	67 325	60 825	59 253	66 901	73 504	78 978	83 299	86 205	87 767	87 744	86 126
D - Contributions	52 466	54 607	66 635	68 357	69 955	71 711	73 175	74 991	76 519	78 161	79 840
E - Investment income	-3 809	1 880	1 975	2 171	2 340	2 482	2 592	2 669	2 710	2 712	2 673
F - Claims reimbursements	55 157	58 059	60 963	63 925	66 822	69 873	72 860	76 098	79 252	82 491	86 043
G - Net assets as of 31.12. ( = C + D + E - F )	60 825	59 253	66 901	73 504	78 978	83 299	86 205	87 767	87 744	86 126	82 595
H - Total benefits paid during three preceding calendar years	156 022	168 445	174 179	182 946	191 709	200 619	209 554	218 831	228 210	237 840	247 786
I - Reserve Fund at 31.12. as % of average benefits paid during three preceding calendar years	117,0%	105,5%	115,2%	120,5%	123,6%	124,6%	123,4%	120,3%	115,3%	108,6%	100,0%
J - Minimum Reserve at 31.12. (50% of average annual benefits over three preceding calendar years)	26 004	28 074	29 030	30 491	31 952	33 437	34 926	36 472	38 035	39 640	41 298
K - Maximum Reserve at 31.12. (150% of average annual benefits over three preceding calendar years)	78 011	84 223	87 089	91 473	95 855	100 310	104 777	109 415	114 105	118 920	123 893
L - Amounts outside of the corridor at 31.12.	0	0	0	0	0	0	0	0	0	0	0
M - Mid Reserve at 31.12.	52 007	56 148	58 060	60 982	63 903	66 873	69 851	72 944	76 070	79 280	82 595

## Appendix 2: Demographic and other assumptions

### Mortality and disability rates

#### Pre-retirement mortality and disability

Age	Rates of death		Rates of disability			
	All staff		General staff		Professional staff	
	Male	Female	Male	Female	Male	Female
20	0.00062	0.00034	0.00015	0.00030	0.00006	0.00022
25	0.00062	0.00034	0.00015	0.00030	0.00006	0.00022
30	0.00062	0.00041	0.00030	0.00030	0.00014	0.00022
35	0.00076	0.00050	0.00023	0.00050	0.00027	0.00022
40	0.00108	0.00059	0.00060	0.00060	0.00021	0.00033
45	0.00154	0.00074	0.00082	0.00080	0.00034	0.00044
50	0.00212	0.00087	0.00173	0.00130	0.00074	0.00066
55	0.00275	0.00103	0.00277	0.00250	0.00101	0.00132
60	0.00327	0.00122	0.00218	0.00380	0.00135	0.00209
61	0.00350	0.00143	0.00218	0.00420	0.00141	0.00231
62	0.00378	0.00166	0.00218	0.00460	0.00149	0.00253
63	0.00410	0.00194	0.00218	0.00500	0.00168	0.00275
64	0.00450	0.00226	0.00218	0.00550	0.00183	0.00297
65	0.00495	0.00263	0.00000	0.00000	0.00000	0.00000
66	0.00550	0.00306	0.00000	0.00000	0.00000	0.00000
67	0.00615	0.00355	0.00000	0.00000	0.00000	0.00000
68	0.00694	0.00413	0.00000	0.00000	0.00000	0.00000
69	0.00790	0.00479	0.00000	0.00000	0.00000	0.00000

## Post-retirement mortality and disability

Age	Rates of death		Generational Improvement Scale		Rates of disability	
	Male	Female	Male	Female	Male	Female
20	0.00062	0.00035	0.01000	0.02000	0.00062	0.00035
25	0.00062	0.00035	0.01000	0.02000	0.00062	0.00041
30	0.00062	0.00041	0.01000	0.02000	0.00077	0.00050
35	0.00077	0.00050	0.01000	0.02000	0.00108	0.00060
40	0.00108	0.00060	0.01000	0.02000	0.00156	0.00074
45	0.00156	0.00074	0.01000	0.02000	0.00238	0.00084
50	0.00293	0.00100	0.01000	0.02000	0.00342	0.00093
55	0.00517	0.00148	0.01000	0.02000	0.00409	0.00147
60	0.00582	0.00210	0.01000	0.02000	0.00557	0.00290
65	0.00738	0.00327	0.01500	0.02000	0.00913	0.00561
70	0.01113	0.00570	0.02000	0.02000	0.01799	0.01091
75	0.01987	0.01084	0.01600	0.01600	0.03519	0.02080
80	0.03601	0.02081	0.01200	0.01200	0.06310	0.03837
85	0.06215	0.03860	0.00800	0.00800	0.10357	0.06885
90	0.10068	0.06884	0.00400	0.00400	0.16014	0.12325
95	0.15558	0.12021	0.00000	0.00000	0.23720	0.22005
100	0.23033	0.20496	0.00000	0.00000	0.34806	0.34349
105	0.34299	0.33151	0.00000	0.00000	0.61226	0.57673
110	0.61226	0.57673	0.00000	0.00000	1.00000	1.00000
115	1.00000	1.00000	0.00000	0.00000	1.00000	1.00000

## Retirement rates

Employees hired before 1 January 1990

Rates of retirement - General Service						
Age	Male			Female		
	Less than 25 years of service	25-30 years of service	Greater than 30 years of service	Less than 25 years of service	25-30 years of service	Greater than 30 years of service
55	0.070	0.140	0.250	0.070	0.140	0.250
56	0.050	0.080	0.120	0.050	0.080	0.140
57	0.060	0.090	0.120	0.060	0.090	0.140
58	0.060	0.110	0.140	0.080	0.110	0.160
59	0.080	0.110	0.120	0.090	0.110	0.140
60	0.800	0.800	0.800	0.800	0.800	0.800
61	0.400	0.400	0.400	0.450	0.450	0.450
62	0.750	0.750	0.750	0.850	0.850	0.850
63-69	0.500	0.500	0.500	0.500	0.500	0.500
70	1.000	1.000	1.000	1.000	1.000	1.000

Rates of retirement - Professional staff						
Age	Male			Female		
	Less than 25 years of service	25-30 years of service	Greater than 30 years of service	Less than 25 years of service	25-30 years of service	Greater than 30 years of service
55	0.045	0.100	0.160	0.060	0.140	0.200
56	0.040	0.070	0.100	0.040	0.070	0.100
57	0.035	0.060	0.120	0.035	0.080	0.120
58	0.060	0.100	0.120	0.060	0.090	0.120
59	0.060	0.100	0.150	0.075	0.090	0.120
60	0.700	0.700	0.700	0.800	0.800	0.800
61	0.400	0.400	0.400	0.450	0.450	0.450
62	0.750	0.750	0.750	0.750	0.750	0.750
63-69	0.500	0.500	0.500	0.500	0.500	0.500
70	1.000	1.000	1.000	1.000	1.000	1.000

## Employees hired after 1 January 1990 and before 1 January 2014

Rates of retirement - General Service						
Age	Male			Female		
	Less than 25 years of service	25-30 years of service	Greater than 30 years of service	Less than 25 years of service	25-30 years of service	Greater than 30 years of service
55	0.040	0.120	0.250	0.040	0.120	0.250
56	0.120	0.060	0.040	0.035	0.060	0.140
57	0.120	0.070	0.040	0.035	0.070	0.140
58	0.140	0.090	0.045	0.040	0.090	0.160
59	0.120	0.090	0.045	0.040	0.090	0.140
60	0.120	0.120	0.060	0.090	0.120	0.140
61	0.120	0.120	0.100	0.120	0.120	0.140
62	0.800	0.800	0.800	0.800	0.800	0.900
63	0.400	0.400	0.400	0.400	0.400	0.700
64	0.400	0.400	0.400	0.400	0.400	0.700
65	0.500	0.500	0.500	0.500	0.500	0.500
66-69	0.500	0.500	0.500	0.500	0.500	0.500
70	1.000	1.000	1.000	1.000	1.000	1.000

Rates of retirement - Professional staff						
Age	Male			Female		
	Less than 25 years of service	25-30 years of service	Greater than 30 years of service	Less than 25 years of service	25-30 years of service	Greater than 30 years of service
55	0.045	0.090	0.160	0.040	0.090	0.200
56	0.035	0.060	0.100	0.035	0.060	0.100
57	0.035	0.060	0.120	0.035	0.080	0.120
58	0.050	0.060	0.120	0.050	0.090	0.120
59	0.050	0.090	0.150	0.050	0.090	0.120
60	0.080	0.120	0.150	0.080	0.120	0.120
61	0.120	0.150	0.150	0.120	0.150	0.120
62	0.700	0.700	0.700	0.700	0.700	0.800
63	0.500	0.500	0.500	0.500	0.500	0.600
64	0.500	0.500	0.500	0.500	0.500	0.700
65	0.500	0.500	0.500	0.500	0.500	0.500
66-69	0.500	0.500	0.500	0.500	0.500	0.500
70	1.000	1.000	1.000	1.000	1.000	1.000

## Employees hired on or after 1 January 2014

Rates of retirement - General Service						
Age	Male			Female		
	Less than 25 years of service	25-30 years of service	Greater than 30 years of service	Less than 25 years of service	25-30 years of service	Greater than 30 years of service
55	0,000	0,000	0,000	0.000	0.000	0.000
56	0,000	0,000	0,000	0.000	0.000	0.000
57	0,000	0,000	0,000	0.000	0.000	0.000
58	0,050	0,090	0,090	0.050	0.090	0.090
59	0,025	0,045	0,045	0.025	0.045	0.045
60	0,035	0,075	0,075	0.060	0.075	0.075
61	0,035	0,075	0,075	0.060	0.075	0.075
62	0,100	0,125	0,125	0.100	0.125	0.125
63	0,125	0,150	0,150	0.125	0.150	0.150
64	0,150	0,150	0,150	0.150	0.150	0.150
65	0.900	0.900	0.900	0.500	0.500	0.500
66-69	0.500	0.500	0.500	0.500	0.500	0.500
70	1.000	1.000	1.000	1.000	1.000	1.000

Rates of retirement - Professional staff						
Age	Male			Female		
	Less than 25 years of service	25-30 years of service	Greater than 30 years of service	Less than 25 years of service	25-30 years of service	Greater than 30 years of service
55	0.000	0.000	0.000	0.000	0.000	0.000
56	0.000	0.000	0.000	0.000	0.000	0.000
57	0.000	0.000	0.000	0.000	0.000	0.000
58	0.060	0.091	0.091	0.060	0.080	0.080
59	0.030	0.046	0.046	0.030	0.040	0.040
60	0.055	0.075	0.075	0.055	0.075	0.075
61	0.055	0.075	0.075	0.055	0.075	0.075
62	0.100	0.125	0.125	0.100	0.125	0.125
63	0.125	0.150	0.150	0.125	0.150	0.150
64	0.150	0.150	0.150	0.150	0.150	0.150
65	0.900	0.900	0.900	0.900	0.900	0.900
66-69	0.500	0.500	0.500	0.500	0.500	0.500
70	1.000	1.000	1.000	1.000	1.000	1.000

## Withdrawal rates

Age	ILO, ISSA, ITC		TC	
	Male	Female	Male	Female
25	9.00%	9.00%	49.50%	49.50%
30	8.00%	8.00%	44.00%	44.00%
35	6.50%	6.50%	35.75%	35.75%
40	5.00%	5.00%	27.50%	27.50%
45	3.50%	3.50%	19.25%	19.25%
50	2.75%	2.75%	15.13%	15.13%
55	2.75%	2.00%	15.13%	11.00%

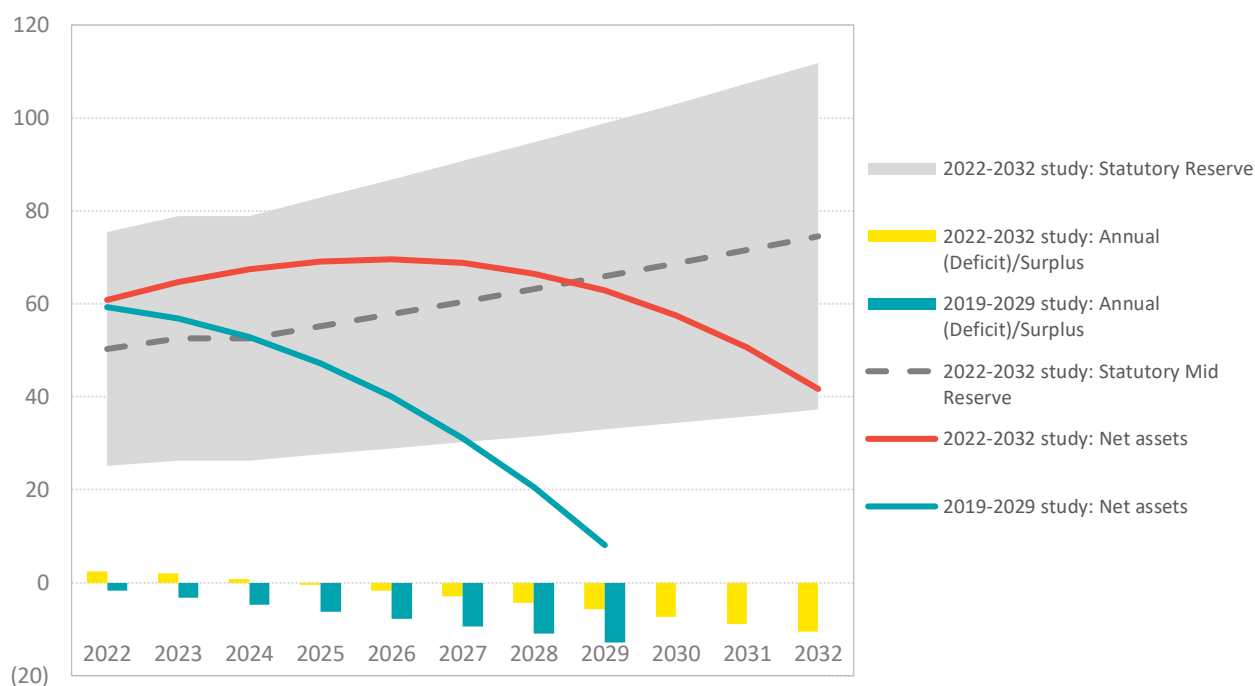
## Salary increase rate

Age	General Service	Professional Staff	Age	General Service	Professional Staff	Age	General Service	Professional Staff
19	0.0684	0.0927	42	0.0519	0.0507	65	0.0397	0.0397
20	0.0683	0.0907	43	0.0515	0.0497	66	0.0387	0.0397
21	0.0682	0.0887	44	0.0511	0.0487	67	0.0377	0.0397
22	0.0681	0.0867	45	0.0507	0.0477	68	0.0367	0.0397
23	0.0681	0.0847	46	0.0503	0.0467	69	0.0357	0.0397
24	0.0679	0.0827	47	0.0499	0.0457	70	0.0347	0.0397
25	0.0677	0.0807	48	0.0495	0.0447			
26	0.0675	0.0787	49	0.0491	0.0437			
27	0.0671	0.0767	50	0.0487	0.0427			
28	0.0665	0.0747	51	0.0483	0.0427			
29	0.0657	0.0727	52	0.0479	0.0427			
30	0.0647	0.0707	53	0.0475	0.0417			
31	0.0635	0.0687	54	0.0471	0.0417			
32	0.0622	0.0667	55	0.0467	0.0417			
33	0.0606	0.0647	56	0.0463	0.0417			
34	0.0591	0.0627	57	0.0459	0.0417			
35	0.0577	0.0607	58	0.0455	0.0407			
36	0.0565	0.0587	59	0.0451	0.0407			
37	0.0554	0.0567	60	0.0447	0.0397			
38	0.0544	0.0547	61	0.0437	0.0397			
39	0.0535	0.0527	62	0.0427	0.0397			
40	0.0527	0.0527	63	0.0417	0.0397			
41	0.0523	0.0517	64	0.0407	0.0397			

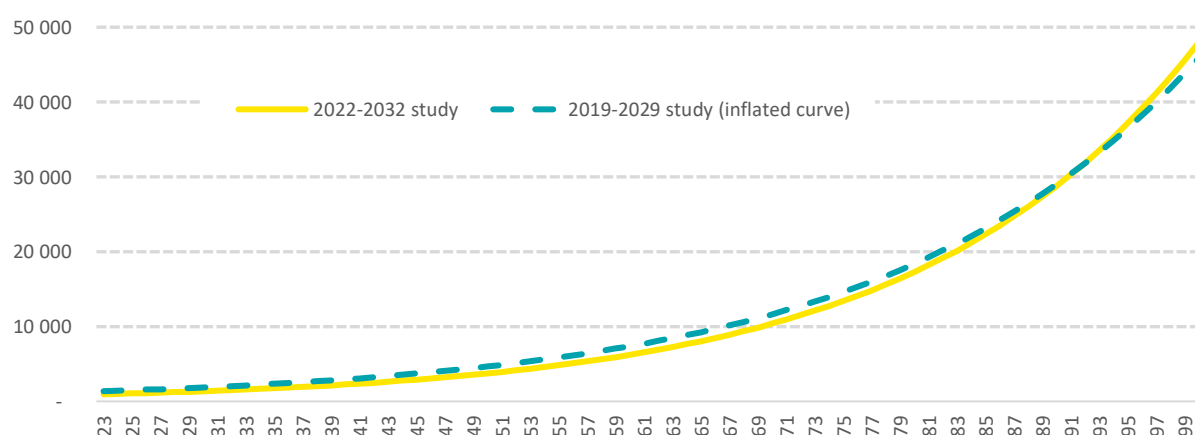
## Appendix 3: Comparison to previous funding study (2018)

The graph below compares results of:

- The baseline scenario of the funding study performed for the period 2019-2029.
- The central scenario of the funding study performed for the period 2022-2032.



The 2022-2032 study shows a more optimistic scenario than 2019-2029 study. This is mainly due to lower expected reimbursements claims. The curves of the two studies are shown below.





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## Contacts

Maxime Renaudin

maxime.renaudin@fr.ey.com

Christine Fargier

christine.fargier@fr.ey.com

Marie Ait-Mokhtar

Marieant.mokhtar@freex.com

