CERN/FC/6574
CERN/3643
Original: English
17 June 2022

PENSION FUND

Annual Report and Financial Statements for the year ended 31 December 2021

Audited by representatives of the
NATIONAL AUDIT OFFICE OF FINLAND

Action to be taken		Voting Procedure
For recommendation	**FINANCE COMMITTEE** 381st Meeting 14-15 June 2022	Simple majority of Member States represented and voting and 51% of the contributions of all Member States
For decision	**OPEN COUNCIL** 208th Session 16-17 June 2022	Simple majority of Member States represented and voting

The Finance Committee is invited to recommend to the Council and the Council is invited to approve the Annual Report and Financial Statements of the CERN Pension Fund for the year ended 31 December 2021 and to grant discharge to the Chief Executive Officer.

PENSION FUND

Annual Report

and Financial Statements

for the year ended 31 December 2021

The Financial Statements included in this Report are published in accordance with International Public Sector Accounting Standards (IPSAS) and the Rules and Regulations of the Pension Fund.

Table of contents

Chair's Report

As Chair of the Pension Fund Governing Board (PFGB), it is my pleasure to present to you the Fund's Annual Report and Financial Statements for the financial year ending 31 December 2021. I trust that this report will give you a useful update on the financial status of the Fund, as well as a summary of the activities in relation to members and beneficiaries and the investment performance over the last year.

The purpose of the Fund is to insure its members and beneficiaries as well as the members of their families against the economic consequences of disability, old age and death. Our operation is a global one and during the year we made payments of more than 320 MCHF to 3'763 beneficiaries residing in 48 different countries and being of 39 different nationalities.

This was despite the continued challenges of the COVID-19 pandemic which continued to affect all of our daily lives in 2021 and I am grateful to the Fund's Benefits Service who supported our members, beneficiaries and their families through these difficult times. The flexibility and openness from members and beneficiaries to adopting different communication channels has been very much appreciated and it was a pleasure to see such a high attendance at the annual information meeting in October, albeit via videoconference.

The economic environment and financial markets remained challenging over the year, however, the Fund recorded another excellent return on investments, ahead of the Fund's required rate of return and all relevant benchmarks. During the year the Fund achieved net gains and income of 310 MCHF. After total benefits and payments of 320 MCHF and receipt of member and employer contributions, net assets increased by 239 MCHF to 4.98 billon CHF.

While the indications are that the world is finding ways to manage the human and economic disruption from COVID-19, the developing situation in Ukraine prevents us from returning to a position of ease. The Fund, as does CERN, condemns, in the strongest terms, the military invasion of Ukraine by the Russian Federation, and deplores the resulting loss of life and humanitarian impact, as well as the involvement of Belarus in this unlawful use of force against Ukraine. As a Pension Fund our role is not to equate human suffering with financial matters, but we have a duty to consider the impact of the invasion on our financial health. While we continue to hope that there is an imminent and orderly resolution, we are closely monitoring the financial markets and taking action to ensure our beneficiaries are safe and continue to receive their benefits. A note has been included on page 77 in respect of the post balance sheet event and the relatively immaterial value of assets held by the Fund directly affected.

More generally, the financial markets had not returned to a sense of equilibrium and normal functioning after the unprecedented fiscal responses to mitigate the impact of COVID-19. This affects how we value the assets held by the Fund but also influences our expectation of future returns. Complementing the accounting valuation of the Fund under IAS 26 that takes place each year, every three years the Fund also completes an actuarial review as a component of how we monitor our funding arrangements. Future expected returns form the basis of how we measure the obligations of the Fund to pay benefits in the future and the funding level is highly sensitive to the assumptions we make about the future. The next actuarial review takes place in 2022 and the results will be communicated to Council in June and to members and beneficiaries later this year.

This year, 2022 is “CERN’s Year of Environmental Awareness” and the Fund demonstrated its strong commitment to managing climate-related risks and opportunities, as well as adopting a responsible investment approach, by approving its first Environmental, Social and Governance (ESG) Policy at the end of 2021. More details of the new ESG policy, the performance of the different asset classes and other investment activities are included in the Investment Report in section 6 of this document.

The CERN Council approved a small number of amendments to the Rules which included the introduction of provisions relating to fraud prevention (Articles I 1.07, I 4.09 and I 4.10), and certain technical changes, mostly on matters related to benefits (Chapter II). Changes were also introduced in respect of the procurement of a surviving spouse’s pension for beneficiaries of a retirement or total disability pension who married on or after 1 August 2006, including, in particular, modifications to Article II 5.09 and the introduction of a new Regulation (Chapter V).

During the year the Fund welcomed a new CEO, Doug Heron, who brings a wealth of experience, having previously been the CEO of the Lothian Pension Fund in Edinburgh, as well as holding a number of different executive roles in the finance sector in the United Kingdom and China.

I would like to take this opportunity to extend my sincere thanks to Matthew Eyton-Jones for his valuable contribution to the CERN Pension Fund during the six years as CEO of the Fund.

The composition of the PFGB remained relatively stable during the year. Philippe Charpentier, the member appointed by the CERN and ESO Pensioners Association, joined the PFGB in April. The Investment Committee (IC) welcomed Georges Hübner as an external professional expert and the Actuarial and Technical Committee (ATC) saw Marcus Klug appointed as Chair and Peter Hristov, Joanne Segars and Jan Robinson join as members. I would like to thank Jayne Atkinson for her significant contribution during her six years on the Investment Committee and extend my gratitude to Adrian Cunningham and Michel Baboulaz for their service to the ATC.

In closing, I would like to thank all the members of the PFGB and its subcommittees for their continued commitment and dedication over the last year. On behalf of the PFGB members, I would also like to warmly thank our colleagues in the Pension Fund Management Unit for their excellent service to the members and beneficiaries of the Fund.

Ossi Malmberg
Chair, Pension Fund Governing Board

ANNUAL REPORT

I. Pension Fund Governing Board Report

The PFGB is pleased to present its Annual Report and Financial Statements for the year ended 31 December 2021.

The purpose of the Fund is to insure its members and beneficiaries as well as the members of their families against the economic consequences of disability, old age and death. (Article I 1.01).

1. Composition of the bodies of the Fund and Advisers (2021)

Governing Board


Ossi Malmberg


Peter Hristov


Dirk Ryckbosch


Marcus Klug


Raphaël Bello


Isabelle Mardirossian


Andreas Glindemann


Philippe Charpentier


Andreas Hilka


Joanne Segars

Members	Appointed by:
Ossi Malmberg, Chair Dirk Ryckbosch	CERN Council
Marcus Klug	ESO Council
Raphaël Bello	Ex-officio (in capacity as member of CERN Management responsible for Administration)
Peter Hristov, Vice-Chair Isabelle Mardirossian	CERN Staff Association
Andreas Glindemann	ESO Staff Association
Philippe Charpentier (as of 01.04.2021)	CERN and ESO Pensioners Association
Andreas Hilka Joanne Segars	Professional members appointed by CERN Council

Investment Committee

Members
Raphaël Bello, Chair
Jayne Atkinson (until 12.05.2021)
Jacob Bjorheim
Georges Hübner (as of 13.05.2021)
Marcus Klug
Isabelle Mardirossian

Actuarial and Technical Committee

Members
Marcus Klug, (Chair as of 19.02.2021) Adrian Cunningham, Chair (until 18.02.2021)
Michel Baboulaz (until 18.02.2021)
Peter Hristov (as of 18.02.2021)
Jan Robinson (as of 15.04.2021)
Joanne Segars (as of 18.02.2021)

Chief Executive Officer

Doug Heron (as of 01.08.2021)

Elena Manola-Bonthond (CEO *ad interim* from 01.07.2021 until 31.07.2021)

Matthew Eyton-Jones (until 30.06.2021)

Chief Investment Officer

Elena Manola-Bonthond

Chief Operating Officer

Kandy Mitchell

Auditors

	Appointed by:
CERN External Auditors National Audit Office of Finland (NAOF), *Helsinki, Finland*	CERN Council
Internal Audit CERN Internal Audit Service	CERN Council

Advisers

Fund Actuary

Buck Consultants Limited, *London, UK*

Custodian

Northern Trust Global Services SE., *Luxembourg*

Main Banker

UBS SA, *Nyon, Switzerland*

Risk Consultant

ORTEC Finance AG, *Pfäffikon, Switzerland*

CERN Consulting Medical Practitioner

MEDABE SA, *Monthey, Switzerland* (as of 01.01 2021)

2. Overview of the year 2021

Pension Fund Governing Board

The PFGB met six times during the year (2020: six times). Due to the continuing COVID-19 situation, all meetings of the PFGB and its committees were conducted remotely, via videoconference.

The PFGB's agendas included recurrent items such as the approval of the submission of the Fund's Annual Report and Financial Statements to the CERN Council and the approval of the Fund's risk limit and strategic asset allocation. In addition, the Fund's Actuary presented the Fund's actuarial "dashboard" to the PFGB, and the Pension Fund Management Unit (PFMU) presented the Fund's annual budget for administrative expenses and its medium-term plan for approval, as well as an update on the Fund's Internal Control System and key business risks. The PFGB also reviewed the 2021-2024 programme of work for the internal audit of the Fund, as well as receiving two internal audit reports on real estate portfolio management and actuarial oversight. As part of the follow-up on these audits, the PFMU presented updates on the implementation of the outstanding audit recommendations.

2022 Periodic Actuarial Review

A key part of the PFGB's programme of work was the preparation for the periodic actuarial review. During the year, the PFGB approved the actuarial assumptions proposed by the Actuary for the periodic actuarial review as at 1 January 2022. The assumptions adopted were proposed by the Actuary following studies undertaken on the mortality, departing members, disability and dependants assumptions. The Actuary also took account of input from the Fund's Risk Consultant, following the Long-term Asset Study, and from CERN and ESO with respect to the expected future personnel policies and practices that could impact the evolution of member turnover and salary increases.

Environmental Social and Governance policy

Environmental considerations and responsible investing remained key priorities for the PFGB who established a working group to review and enhance the Fund's approach to ESG. The working group conducted a survey of best practices amongst peers, reviewed the regulatory framework and received recommendations from the Fund's Risk Consultant. Following this review, the PFGB approved a new ESG Policy that sets out the Fund's approach to managing climate-related risks and opportunities and adopting responsible ownership practices, as well as promoting good social governance and climate aware risk management with the Fund's asset managers, and keeping abreast of best practices and global trends in this area.

Working Groups

Two additional PFGB working groups were created during the year to review updates to the Fund's Code of Conduct and the appointment of additional and external expert members to the PFGB's subsidiary bodies i.e. the Investment Committee (IC) and Actuarial and Technical Committee (ATC).

Investment Committee

The Investment Committee (IC) held four meetings during the year (2020: five meetings). The IC received regular reports from the PFMU on the performance of individual asset classes, examining and reviewing the actions by the PFMU aimed at optimising the Fund's performance in line with the risk limit and strategic allocation set by the PFGB.

Environmental Social and Governance (ESG) policy

ESG was a key priority for the IC during the year, with regular updates received from the PFMU on the progress of the ESG benchmarking exercise and draft policy. During its November meeting the IC reviewed the final report from the ESG Policy and Objectives Working Group and agreed to recommend that the PFGB adopt the proposed new ESG policy for integration in the Fund's Statement of Investment Principles.

Long-term asset study

The Fund's Risk Consultant presented the results of an updated long-term asset study to the IC. The purpose of the study is to provide the basis for defining a target asset allocation in the long-term that is compatible with the Fund's risk limit and with the longer-term return objectives. The study is an important basis for setting the expected rate of return assumption in the periodic actuarial review.

Risk limit and Strategic Asset Allocation

In November, the IC approved the Fund's Strategic Asset Allocation (SAA) for 2022 and endorsed the proposal, subsequently approved by the PFGB, to retain the Fund's risk measure of 1 Year 5% CVaR at -8% for the coming year.

External service contracts

The IC also received updates from the PFMU on the retendering of some of the external service providers' contracts, such as those responsible for risk consultancy, legal due diligence and operational due diligence services, as well as the provision of a monitoring system for private market funds.

Actuarial and Technical Committee

The Actuarial and Technical Committee (ATC) met four times during the year (2020: three times).

During the year, the ATC agenda included regular items such as the review of the Actuary's year-end report and semi-annual dashboard that monitors the funding situation.

2022 Periodic Actuarial Review

The preparation for the 2022 periodic actuarial review was a key focus of the ATC during the year. The committee reviewed a number of studies completed by the Actuary that provided the basis for informing the decisions around the Best Estimate actuarial assumptions. The Actuary received input from the Fund's Risk Consultant following the Long Term Asset Study and proposed an updated discount factor of 3.7% reflecting the more challenging economic environment. The Actuary also updated the Fund's mortality experience and conducted a review of the most recent International Civil Servants Longevity Table (ICSLT2018) to determine a best-fit scaling factor reflecting the Fund's mortality experience. The higher scaling factor of 94% of the new tables compared to 77% of the ICSLT2013 is largely a result of the ICSLT2018 providing a better fit to the Fund's actual mortality data. Further studies in relation to the departing members, disability and dependants were completed as the basis for proposing updates to the relevant assumptions. Both sponsors, CERN and ESO, provided important information on the expected future evolution of the member population and salaries. In the ATC meeting in November, the Actuary proposed a set of Best Estimate Assumptions that were reviewed by the ATC and recommended to the PFGB for approval.

Benefits Service

Regular updates were provided by the PFMU on the activities of the Benefits Service, in particular the strategic roadmap to enhance the infrastructure within the service and the tools available for communicating with members and beneficiaries. The annual report from the Fund's Medical Practitioner and a report from the PFMU on the annual life certificate exercise were also presented to the committee. Following an audit by the CERN Internal Audit Service, the ATC reviewed the results of the internal audit on actuarial oversight and received updates from the PFMU regarding the progress of outstanding audit recommendations.

3. Management Commentary

Report by the CEO

Another challenging year for members, beneficiaries and their families

The challenges of Covid-19 continued throughout 2021 and required the Fund to continue to adapt its working arrangements to best meets the needs of our members and beneficiaries. Our mission is to pay the benefits promised to our beneficiaries and we did this successfully throughout the year. I offer my thanks to colleagues in the Pension Fund Management Unit for their dedication and commitment to our mission during 2021, and to our members and beneficiaries for their support to us.

Evaluating the Funding Ratio

Every three years, or earlier by exception, the Pension Fund conducts a Periodic Actuarial Review to determine the Funding Ratio, broadly defined as the sufficiency of its assets to meet obligations to pay pension benefits at the current time and over a projected time period. In contrast to the Funding Ratio that we update each year in the Annual Report & Financial Statements, this review is carried out by our Independent Actuary and uses a 'best estimate' view of the expected future returns from the investment of the Fund's assets. The results of the Periodic Actuarial Review will be reported to CERN Council in the June 2022 session and communicated to all of our stakeholders later in the year.

Medium-term operating plan

In the autumn of 2021 the PFGB endorsed the plans of the PFMU for 2022 and beyond. This Medium Term Operational Plan forms part of the integrated operational planning across CERN and sets out the recurring, new and continuing projects where the work involved requires a significant use of resource. In our plan there are a total of 37 different commitments: 16 recurring; 9 new and 12 continuing.

The plan includes the implementation of technology upgrades to increase our efficiency, strengthen our controls and improve the experience of our members and beneficiaries when interacting with us such as with reduced requirement for paper forms.

Our work in Responsible Investment

During the year and following completion of a Working Group led by members of the PFGB, the Pension Fund set out an ambitious work plan to channel its focus and add momentum to our Responsible Investment journey. This included publishing our first dedicated ESG policy (Environmental, Social and Governance). This is now available on our website, incorporated within our Statement of Investment Principles. In 2022 the PFMU will make further progress including climate change impact analysis on the Fund's assets, carbon monitoring across the portfolio and delivering a report against the Taskforce for Climate Related Financial Disclosures (TCFD) commitments.

Risk management

The Pension Fund takes a holistic approach to the management of risk and operates an assurance framework that provides the PFGB and other stakeholders with an assessment of the strength of controls for risk management. This includes an Internal Control System (or ICS) which details risk and compensating controls, Internal Audit (provided by CERN colleagues, or professional firms through co-sourcing arrangements) and External Audit. In 2021 a total of three internal audit reviews were completed with any recommendations from those reviews being addressed by the Fund.

Douglas Heron
CEO, CERN Pension Fund

4. Members and beneficiaries

Benefits Service overview of the year 2021

The purpose of the Fund is to insure its members and beneficiaries as well as the members of their families against the economic consequences of disability, old age and death. (Article I 1.01).

Last year saw another difficult year for many of the Fund's members, beneficiaries and their families as a result of the COVID-19 pandemic and the resulting restrictions in many countries. CERN implemented a four-level COVID-19 scale, including determining conditions for onsite access. Whilst the overarching objective remained to safeguard the health and safety of everybody on the CERN sites, it did mean that many beneficiaries were not being able to visit the Benefits Service in person. The Benefits Service was still able to provide a seamless service using other communication means and thanks to the patience and flexibility of members and beneficiaries.

Over 24 million CHF benefits paid each month

Welcomed 498 new members

Supported 127 families of beneficiaries who sadly passed away

Processed 59 members to retiree status

48 countries with beneficiaries

Converted 23 members to deferred status

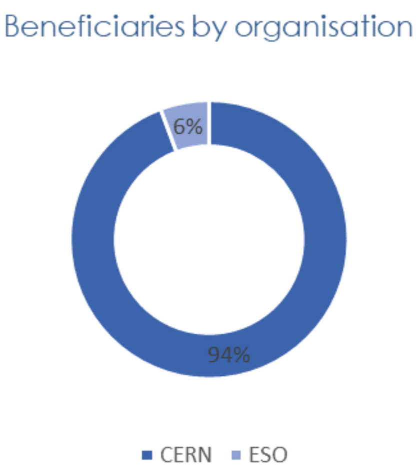
Amendments to Fund's Rules and Regulations (effective 1 January 2021)

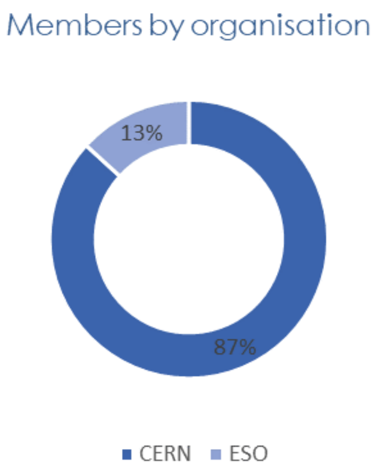
The beginning of the year saw amendments to the Fund's Rules and Regulations, including the introduction of the possibility of a fractional purchase of a surviving spouse's pension, for beneficiaries who married after retirement and since 2006. The amendments to Article II 5.09 introduced the possibility to purchase a defined tranche 20%, 40% or (the maximum) 55% of the deceased beneficiary's pension. An introductory measure allowed beneficiaries who were already married on 1 January 2021 to submit a request to procure an entitlement to all or part of a surviving spouse's pension, where no entitlement to a surviving spouse's pension from the Fund pre-existed or had been procured. During the 180 days when the introductory measure was available twenty five beneficiaries requested calculations and of those seven chose to procure the entitlement. A number of these beneficiaries elected to purchase a reduced spouse's pension i.e. 20% or 40% of the deceased beneficiary's pension.

The amendments to the Fund's Rules and Regulations also included the introduction of a specific article setting out the definition of fraud, as well as new articles to describe the Fund's process for the recovery of undue payments or the refund of overpayments. A number of technical changes were also included to align the Rules with existing practices.

Performance indicators for key processes

The Fund's in-house Benefits Service provides a dedicated team for all our members and beneficiaries. Key processes include the monthly payment of benefits to beneficiaries living in 48 countries, as well as the payment of transfer values to members who decide to leave the Fund when their contract ends. Support for families of deceased beneficiaries is an important part of the Benefits Service activities and we aim to complete the administration processes in an efficient and compassionate way.



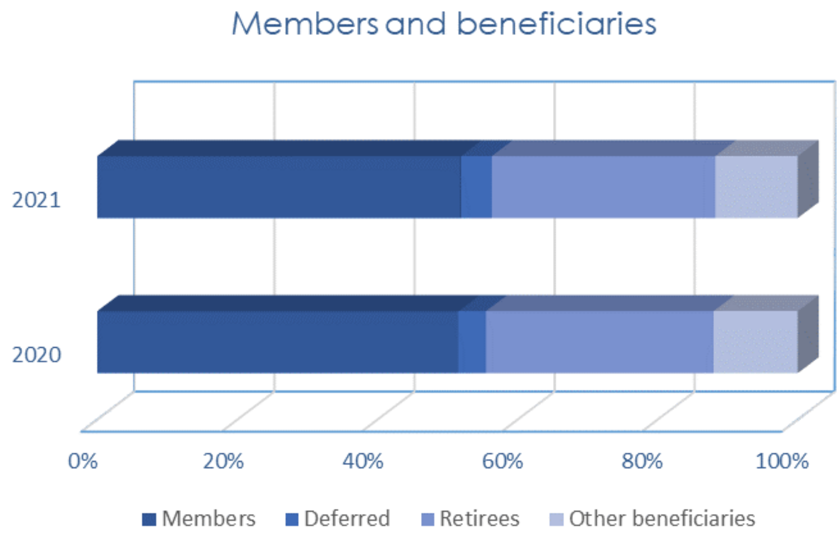


The number of members and beneficiaries as at 31 December was as follows:

			2021			2020
	CERN	ESO	Total	CERN	ESO	Total
Members (pre 01.01.2012)	1,569	286	1,855	1,648	302	1,950
Members (post 01.01.2012)	1,868	238	2,106	1,743	209	1,952
Total Members	3,437	524	3,961	3,391	511	3,902
Deferred retirement pensions	278	61	339	243	58	301
Retirement pensions	2,313	123	2,436	2,349	113	2,462
Surviving spouse pensions	816	17	833	828	16	844
Orphan pensions	36	1	37	40	1	41
Disability and ex-gratia	22	6	28	19	6	25
Total Beneficiaries	3,465	208	3,673	3,479	194	3,673

The number of members as at 31 December 2021 was 3,961 (3,902 as at 31 December 2020), representing an increase of 1.5% compared to 31 December 2020.

The number of beneficiaries as at 31 December 2021 was 3,673 (3,673 as at 31 December 2020), unchanged compared to 31 December 2020.



There were 410 members who left the two Organisations (CERN and ESO) during the year 2021 (461 in 2020), 59 of which were retirements (69 in 2020):

	2021				2020			
	Men	Women	Total	%	Men	Women	Total	%
Retirement	46	13	59	14%	57	12	69	15%
Deferred Pension	17	6	23	6%	19	1	20	4%
Disability	4	-	4	1%	-	-	-	0%
Transfer Value	252	71	323	79%	275	96	371	81%
Deaths	1	-	1	0%	1	-	1	0%
Total Departures	320	90	410	100%	352	109	461	100%

5. Actuarial Status of the Fund

A key measure when assessing the financial situation of a defined-benefit pension fund such as the CERN Pension Fund (the “Fund”) is the funding ratio. The funding ratio indicates the degree to which the Fund’s assets cover the value of liabilities to be paid now and in the future and is calculated by dividing the net assets at the balance sheet date with the present value of the liabilities.

A funding ratio of 100% means that a pension fund is in a position to service all of its obligations whereas funding ratios in excess of 100% and below 100% indicate overfunding and underfunding scenarios respectively. Funding levels can fluctuate hence many pension funds target a funding ratio above 100%.

Liability Measurement

It is important to note that a pension fund’s liabilities can be defined and measured in a variety of ways and therefore different funding ratios may be calculated for the same fund.

The accumulated benefit obligation (ABO) measure takes into account those liabilities accumulated or accrued at a given valuation date. Only those benefit payments that are due to be made to members and existing beneficiaries at the valuation date are included in this measure and therefore no future accumulation of benefits is assumed.

Another approach to liability measurement which does take into account anticipated increases in benefits is the projected benefit obligation (PBO) method. This measure accounts for expected remuneration increase linked to career change and indexation, and also pension indexation. The funding ratio based on the PBO is generally considered the single most appropriate measure for assessing the financial position of the Fund at a given date.

When considering how a pension fund’s liabilities will evolve over time the PBO liability is projected forward using a consistent set of actuarial assumptions. The PBO can be projected forward on either a ‘closed fund’ or ‘open fund’ basis. For a closed fund projection, no allowance is made for any new entrants to the Fund over time such that the analysis focuses only on the current membership. Conversely, an open fund projection will anticipate new entrants to the Fund, making allowance for the accrual of benefits for these members as time progresses.

Table 1 below summarises the elements of the different liability measures described above:

Liability Measure	Accrued service	Remuneration Indexation	Pension Indexation	New Entrants
ABO	X			
PBO (Closed Fund)	X	X	X	
PBO (Open Fund)	X	X	X	X

Table 1

Actuarial Assumptions

In addition, these different methods of determining a funding ratio may use different actuarial assumptions including salary and pension indexation, longevity and the discount rate. These assumptions are typically derived from studies of previous experience of trends in these variables over different periods of time. The Fund’s actual experience over the study period is compared to the current actuarial assumptions used in the Fund’s actuarial models and where variations are detected adjustments may be made to better reflect, in the actuarial model, the recent and accumulated history of these assumptions.

Note that where an experience study is not feasible, actuarial assumptions may instead be set with reference to a fund's investment strategy, current market conditions, publicly available statistics, legislation, accounting standards, or a best estimate of future trends. The Fund's Actuary is appointed by the PFGB to carry out the actuarial studies on an independent basis.

In 2021 the CERN Pension Fund has disclosed information on the financial situation of the Fund based on the following different liability measures:

1. The Accounting Measure under International Accounting Standard 26 (IAS 26) – Accounting and Reporting by Retirement Benefit Plans (PBO – Closed Fund)
2. The Updated Funding Measure – Best Estimate assumptions (PBO – Closed Fund)
3. The Periodic Actuarial Review as at 1 January 2019 – Best Estimate assumptions (PBO – Open Fund)

The key actuarial assumptions applied in the different liability measures are indicated in Table 2 below. For further details regarding the actuarial assumptions applied under IAS 26 please refer to section VI. "Extract of Actuary's Report on the Fund as at 31 December 2021". The actuarial assumptions used for the Updated Funding Measure as at 31 December 2021 were the "Best Estimate" assumptions. These assumptions are those that were approved for use in the Periodic Actuarial Review as at 1 January 2022.

Actuarial Assumptions	Accounting Measure under IAS 26 PBO (Closed Fund) 31 December 2021	Updated Funding Measure Best Estimate PBO (Closed Fund) 31 December 2021	Periodic Actuarial Review Best Estimate PBO (Open Fund) 1st January 2019
Discount Rate	AON Swiss AA Corporate Bond Yield Curve *(0.15% single equiv. rate)*	3.7% p.a.	1.5%: until 2021 2.5%: 2022-2026 4.5%: 2027-2031 5.7%: 2032 onwards
Remuneration increase linked to inflation	1.1% p.a.	1.1% p.a.	0.7%: until 2021 0.9%: 2022-2026 1.0%: 2027-2031 1.4%: 2032 onwards
Indexation of pensions linked to inflation	1.1% p.a.	1.1% p.a.	0.7%: until 2021 0.9%: 2022-2026 1.0%: 2027-2031 1.4%: 2032 onwards
Remuneration increase linked to career change	Fellows: 0.0% p.a CERN and 2% p.a. ESO Non fellows: 1.5% p.a CERN, 2% p.a. ESO Age dependent groupings between 1.2% and 2.1% p.a. specific to CERN and ESO.	Fellows: 0.0% p.a CERN and 2% p.a. ESO Non fellows: 1.5% p.a CERN, 2% p.a. ESO Age dependent groupings between 1.2% and 2.1% p.a. specific to CERN and ESO.	Fellows: 0.0% Non fellows: 2.0% to 1.2%. Linear reduction between age 18 to 66
Mortality and disability tables	94% ICSLT2018*	94% ICSLT2018*	77% ICSLT2013**

Table 2

** Following analysis of the Fund's mortality experience, an adjustment of 94% to the probabilities contained within the ICSLT2018 tables was proposed as the best estimate assumption.*

*** Following analysis of the Fund's mortality experience, an adjustment of 77% to the probabilities contained within the ICSLT2013 tables was proposed as the best estimate assumption.*

Discount Rate

A key actuarial assumption is the discount rate which is used to calculate the present value of a pension fund's future liabilities and can be determined in different ways. Given the long term nature of pension fund liabilities, discount rates can be based on long term market interest rates or on actuarial assumptions that are more stable. Even small differences in the discount rate used can have a significant effect on the value of the liabilities and therefore the funding ratio. Different discount rates may be used under different approaches to liability measurement disclosed by the Fund.

Explanation of different liability measures and actuarial assumptions

The Accounting Measure under International Accounting Standard 26 (IAS 26) – Accounting and Reporting by Retirement Benefit Plans

The Fund prepares its financial statements in accordance with International Public Sector Accounting Standards (IPSAS) and International Accounting Standard 26 (IAS 26). As there is no IPSAS with respect to the reporting of the pension plan the Fund conforms to the provisions of IAS 26 in presenting the net assets available for benefits, the actuarial present value of promised retirement benefits and the resulting excess or deficit.

The Fund uses the PBO closed fund approach to value liabilities under IAS 26 and this permits an assessment of the financial position of the Fund by comparing the net assets of the Fund with its liabilities as at 31 December 2021. As the PBO method takes account of future salary and pension increases, it presents a higher value for liabilities than that which would be calculated under the ABO method.

Under IAS 26 the Fund uses a discount rate that refers to high-quality Swiss corporate bonds. This is a variable rate and as such is likely to produce volatile funding ratios from one year to the next. Using this variable discount rate to calculate the present value of promised retirement benefits illustrates the extent to which the Fund's net assets as at 31 December 2021, if invested with minimal investment risk would meet the liabilities at this date. It is important to note that this approach to determining the discount rate, although required by accounting standards, produces a very conservative funding ratio that is inappropriate for assessing the financial health of the Fund.

Updated Funding Measure

This measure of the Fund's liabilities also uses the PBO closed fund approach but with a different set of actuarial parameters that represent a best estimate of the long term funding view. Best Estimate actuarial assumptions are those which are most likely to be borne out in practice. For each assumption there is a 50% chance of actual experience being more favourable than assumed and a 50% chance of experience being less favourable than the best estimate assumption. The aggregate effect is that actuarial gains and losses should be equally likely in future years.

An important difference from the actuarial assumptions under the Accounting Measure is the discount rate which under this method represents the Fund's long term investment return target. The use of a consistent discount rate reduces the funding ratio volatility which is inherent in the Accounting Measure approach.

The Periodic Actuarial Review as at 1 January 2019

As provided for under Article I 4.04 of the Fund's Rules, a Periodic Actuarial Review is performed at least every three years. The purpose of this review is to inform CERN Council of the financial situation of the Fund. The last Periodic Actuarial Review was carried out as at 1 January 2019.

With respect to this liability measurement the actuary projects the assets and liabilities to determine the expected funding level in the future. The PBO method is again used but in addition future contributions, the expected return on assets and future accrual of service for current and new members of staff is included in the projection. Given this inclusion of expected future service for the current and future population and the use of a consistent discount rate, this measure of a future funding ratio is the most appropriate approach for funding purposes.

Funding Situation under different Liability Measures

Table 3 below shows the funding situation under each of the liability measurement approaches using the actuarial assumptions mentioned in Table 2 above. The prior year funding ratios under the first two measurements are presented in section VI "Extract of Actuary's Report on the Fund as at 31 December 2021". There is no funding ratio at 1 January 2041 as these two measures are projected on a closed fund basis.

Liability Measure	Funding Position Accounting Measure under IAS 26 As at 31 December 2021 kCHF	Funding Position Updated Funding Measure As at 31 December 2021 kCHF	Funding Position Periodic Actuarial Review As at 1 January 2019 kCHF
Net assets of the Fund	4,981,661	4,981,661	4,203,000
Actuarial Liabilities	12,368,355	6,464,408	6,197,000
Surplus/(Deficit) in the Fund	(7,386,694)	(1,482,747)	(1,940,000)
Funding Ratio at date of measure	40.3%	77.1%	67.8%
Funding Ratio at 1 January 2041	N/A	N/A	103.4%

Table 3

Summary

Different approaches to the measurement of liabilities may be applied to determine the financial situation of a pension fund under different scenarios and to meet the requirements of accounting standards.

The most appropriate method of liability measurement for assessing the funding situation is the PBO in an open fund scenario as determined in the Fund's three-yearly Periodic Actuarial Review.

The Periodic Actuarial Review as at 1 January 2022

As in the case of the previous Periodic Actuarial Review, a Best Estimate approach is being used to set the actuarial assumptions for the Periodic Actuarial Review as at 1 January 2022.

Best Estimate actuarial assumptions are those which are most likely to be borne out in practice. For each assumption there is a 50% chance of actual experience being more favourable than assumed and a 50% chance of experience being less favourable than the Best Estimate assumption. The aggregate effect is that actuarial gains and losses should be equally likely in future years.

The PFGB approved the Best Estimate assumptions as determined by the Fund’s Actuary at its meeting on 25 November 2021 with an additional assumption approved at its meeting on 3 February 2022. These assumptions will be used in the Periodic Actuarial Review as at 1 January 2022.

6. Investment Report

Macroeconomic Highlights

In 2021, global economic activity rebounded sharply. According to the IMF, global GDP rose by 5.9%, the highest increase in recent decades, rebounding from a severe -3.1% contraction in 2020.

The strong increase in growth was driven by a combination of factors but reflected, in particular, the improved health situation around the COVID-19 pandemic and substantial fiscal stimulus in the US.

Although continued waves of infections from COVID-19 led to renewed lockdowns, the economic impact was less severe as vaccinations became more widely available and the restrictions on mobility eased. Fiscal stimulus was also a driver of growth, especially in the first half of the year when newly elected US President Biden was able to pass aggressive fiscal policy legislation.

However, one consequence of the very strong growth and continued disruptions linked to COVID-19 was higher inflation.

Consumer price inflation was elevated in many countries as the reopening of economies, supply chain constraints and the robust consumption demand fuelled higher prices. In the US, inflation accelerated to multi-decade highs, while in Europe and in the UK headline figures also grew at record paces. Additionally, the elevated level of prices for commodities, such as gas and coal, raised expectations of higher heating and electricity costs, especially in Europe.

As a result, in the latter part of the year, central banks signalled that they would start to unwind their monetary policy support. In a number of advanced and emerging economies, policymakers started to raise interest rates, while, in the US, the Federal Reserve stated that it would probably raise its policy rate in 2022.

In summary, 2021 was a year of strong growth and high inflationary pressure. Monetary and fiscal policy was still very accommodative, but support started to be gradually unwound in the latter part of the year.

Risk Management and Asset Allocation

The Fund's risk management and asset allocation policy is set out in the Statement of Investment Principles, which has been approved by the PFGB. It is based on an annual risk limit and an annual strategic asset allocation (SAA), and on managing the current asset allocation (CAA) in a manner compatible with both the risk limit and the investment return objective.

The Fund's return objective is to meet or exceed the actuarial best-estimate discount rate, adjusted for Geneva inflation, over the long term. For the period 2019 – 2021 the objective stands at 0.80% per annum plus Geneva inflation. The PFGB set the same risk limit for 2021 as for 2020, namely a 5% Conditional Value-at-Risk (CVaR) limit of -8%.

The SAA for 2021, which was defined by the PFMU in collaboration with the risk consultant (Ortec Finance) and was subsequently endorsed by the Investment Committee and approved by the PFGB, is shown in Table 4 below.

Asset class	CAA as at 31-12-2021	SAA 2021	SAA 2020
Fixed Income	24.62%	29.00%	30.50%
Equities	18.12%	16.00%	16.00%
Real Estate	18.19%	19.00%	19.00%
Infrastructure	2.65%	2.50%	2.50%
Timber/Farmland	1.61%	2.50%	2.50%
Private Equity	9.59%	6.00%	6.00%
Hedge Funds	8.44%	9.50%	8.50%
Commodities/Gold	2.75%	5.50%	5.00%
Cash	11.18%	10.00%	10.00%

Table 4: CAA as at 31-12-2021, SAA 2021 and SAA 2020.

Note: The CAA does not add up to 100% as the impact of futures and options is included in the equity allocation.

In 2021, the level of uncertainty and the impact of the unprecedented monetary and fiscal policies led the risk consultant to recommend the continued use of a CVaR error margin, as implemented on 12 March 2020, in accordance with the Risk Framework of the CERN Pension Fund approved by the PFGB in November 2017.

The risk level of the SAA remained high throughout the year due to escalating US-China tensions, high government and corporate debt levels and the repercussions of negative interest rates. From the beginning of the summer onwards, the risk gradually increased to even higher levels, owing to uncertainty around the COVID-19 outlook. Furthermore, the strong economic recovery driven by equities caused the business cycle to reach its highest level since 2014, which detracted from its future recovery potential. After the summer, the growing inflationary pressure and increased commodity prices put further downward pressure on the economic recovery and therefore increased the risk of the SAA.

Throughout the year, the Fund’s risk, as estimated by the risk consultant using the disequilibrium scenarios, remained within the one-year 5% CVaR limit of -8% +/- the 2 percentage point error margin. It is recalled that the use of disequilibrium scenarios, which are short-term scenarios, is necessary because the Fund’s risk limit is expressed in terms of a one-year time horizon. The disequilibrium scenarios are those that take account of the current policies of central banks, which tend to keep the level of risk from rising to that of the long-term expectation.

Portfolio Performance in 2021

In 2021 the Fund returned a performance of 6.59%, net of external management and custody fees, as reported by the external performance-monitoring reporting service (APEX) as at 31 December 2021. This performance, which is calculated using a time-weighted rate of return to eliminate the impact of external cash flows and the associated timings on return calculations, does not include the governance and internal management/operations costs[1], which are evaluated at approximately 0.17 percentage points.

[1] Includes PFGB, ATC and IC expenses, actuary, CERN services, risk consultant, PFMU staff, temporary labour and external service providers related to the investment process, such as due diligence providers, data providers, real-estate appraisal service, and performance-reporting services.

Figure 1 shows the Fund's cumulative returns compared to the return objective since December 2011, as reported by APEX. The return objective corresponds to the best-estimate real rate, which stands at 0.80% per annum for the time period of 2019 – 2021. As at 31 December 2021 the Fund's cumulated real returns exceeded the objective by 41.35 percentage points.

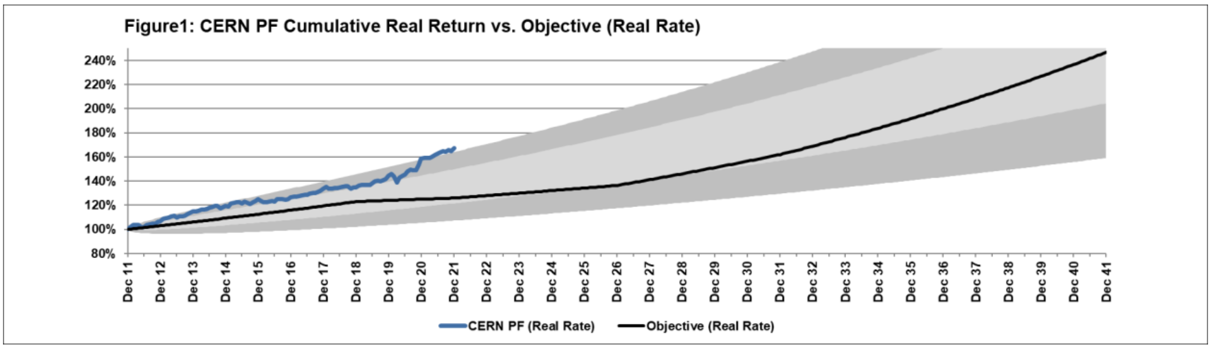


Figure 1: Cumulative Real Return vs. Objective (Real Rate)

Currency Hedging Policy

Throughout the year, the Fund maintained a prudent currency hedging policy, hedging 99% of its overall currency exposure on average.

Fixed Income

The fixed income portfolio returned -0.65% after currency hedging costs.

After a strong year in 2020, 2021 was more challenging for fixed income portfolios, characterised by rising rates and compressed spreads and low volatility in the credit markets. While the very high level of liquidity injections and fiscal stimulus continued throughout the year, the central banks started changing their narratives in favour of less supportive policies. In this context, the level of rates was pushed higher all over the world (e.g. 10-year German government bond yields rose from -0.57% to -0.18%, while 10-year Swiss government yields rose from -0.57% to -0.15%) and interest rate curves flattened in anticipation of a subsequent slowdown of the economy.

At the same time, the huge amount of fiscal stimulus (resulting, for example, in a gross government debt to GDP ratio in the US of more than 130%) pushed volatility lower and kept credit spreads compressed. As a result, 2021 turned out to be a low volatility and so called 'carry trade' environment favourable for high-risk assets.

The cost of hedging foreign currencies in Swiss francs, although lower than in past years, was still a detractor from the performance of investments in USD-denominated fixed income assets.

Equities

It was a very strong year for equities, driven by extremely high earnings growth - they were in the region of +50% globally. The economic rebound and large amounts of stimulus following the onset of the pandemic ignited the reversal in earnings. The US S&P 500 was the best-performing market with a rise of 28.7%, followed by European equities, which rose by 25.1%. The global emerging market index fell by 2.5%, impacted in particular by Chinese equities, which fell more than 20%.

The equity portfolio returned 11.5% after currency hedging costs. Most of the Fund's active portfolios underperformed their indices due to strong sector rotations (i.e. growth to value), following a year of extremely strong outperformance in 2020.

Real Assets: Real Estate - Timber and Farmland - Infrastructure

The real-asset portfolio comprises the following three sub-portfolios: real estate (directly owned properties and real-estate funds), timber/farmland and infrastructure.

Real Estate

The real estate portfolio returned 10.64% after currency hedging costs. 97% of this portfolio consists of directly owned properties in four countries: Switzerland, France, the United Kingdom and Germany. The remaining 3% is invested in externally managed real-estate funds.

The performance of the portfolio was mainly driven by the capital appreciation of directly owned properties following the yearly independent valuation process. The main contributors to this increase in capital value were a large residential property in Geneva, followed by the French properties. Capital value was driven up by strong demand for core, high-quality defensive assets. The income component was negligible, mostly because the funding of a development project and budgeted capital /operational expenses largely offset the rental income of the year.

No investments or divestments were made during the year. The Fund actively explored investment opportunities with an attractive risk/return profile in the main European markets.

Timber and Farmland

The timber and farmland portfolio returned 7.70% after currency hedging costs. This portfolio consists of directly owned forests in France (44%), investments in externally managed timber funds (14%) and one investment in an externally managed dairy fund.

The positive performance was mainly generated by the increase in the capital value of the directly owned forests, which delivered a year-on-year increase of 4.8 MEUR or 16.3%. No new investments were made during the year.

Infrastructure

The infrastructure portfolio represents 2.6% of the Pension Fund's assets and mainly comprises listed equities (around 60%) and private partnerships (around 30%). 2021 was a positive year for the portfolio, which ended the year at +9.53% in currency-hedged terms.

The portion of the portfolio private markets comprises a fund focused on European public-private partnerships. Its underlying investments are largely availability-based (i.e. concession agreements in which a public agency makes payments linked to the infrastructure, such as a hospital, being available for use), with fully contracted revenues received from government-backed authorities.

At the end of 2021 the Pension Fund committed 15 MEUR to an onshore wind energy fund based in the Nordic countries.

Private Equity

In 2021, the private equity portfolio returned a strong performance of +35.7% after currency hedging costs. This performance was broad-based, with all strategies contributing evenly. The portfolio generated a positive net cash flow of about 56 MCHF.

As of December 2021, the portfolio consisted of 74 active funds (involving 47 managers), invested across buyout, growth and venture capital funds. The portfolio is quite concentrated, as approximately 19 funds make up half of the total exposure (NAV plus unfunded commitments). The geographic exposure of the total commitment is evenly shared between Europe and North America.

In 2021, the Fund committed a total of almost 148 MCHF to private equity across different strategies.

Hedge Funds

At the end of 2021, the hedge fund allocation included 13 funds. During the year, the portfolio was extended to include 4 new funds for a total of 55 MCHF, bringing it closer to the strategic asset allocation.

In 2021, the hedge fund portfolio returned 10.92% after currency hedging. This positive performance was generated across all strategies, in particular multi-strategy, credit and macro funds.

Commodities/Gold

In 2021, the commodities and precious metals portfolio delivered a negative performance, with gold down 3.44% and silver down 11.56%. These negative returns from precious metals were driven by market expectation of interest rate hikes. The portfolio fell by a total of 4.57% during the year.

Update on the Operational Infrastructure

The implementation of the Portfolio Management System (PMS) continued in 2021 and is due to be completed by Q2 2022. The implementation of a PMS represents a major improvement in the infrastructure of the Fund, which will strengthen all trade flow processes and provide an overall more robust and reliable set-up in terms of operations and business continuity.

Update on Environmental, Social and Governance Policy

The incorporation of environmental, social and governance (ESG) factors in the Fund’s investment process took a significant step forward at the end of the year when the PFGB adopted an ESG policy whose objectives are consistent with the Fund’s investment policy. This ESG policy is a prudent process consisting of several stages, centred around the following four pillars:

- Management of climate-related risk and opportunities within the framework of the Task Force on Climate-related Financial Disclosure (TCFD). Climate change, in particular, is expected to be a source of increased physical risks (e.g. climate events) and transition risks (e.g. tighter regulatory requirements, legal risks, stranded assets, social unrest).
- Development of an asset manager engagement framework that promotes good governance, consideration of social factors and value-drivers, climate-aware risk management and ESG-related disclosures.
- Adoption of responsible ownership practices, principally through collective engagement and proxy voting. While divestment may result in increased cost of capital for a company and act as an incentive for improvement, there is an argument that engagement can achieve the same ESG result coupled with financial benefits to the investors.
- Monitoring of best practices and global regulatory trends.

Among the four pillars listed above, “collective engagement” is at the forefront of the Fund’s ESG policy. In 2021, the Fund actively participated in 14 initiatives led by Ethos Engagement Pool International (EEPI), a platform established by the Fund’s provider of proxy voting services, through which shareholder engagements take the form of participation in initiatives mainly centred on environmental, social and governance topics.

Conclusions – Macro Outlook

For 2022, the outlook is relatively challenging. On the one hand, the health situation related to COVID-19 seems to be improving as economies reopen and move from containment to learning to live with this virus. This should allow some of the most affected sectors to slowly recover and some supply shortages to be overcome.

However, the situation remains highly uncertain in terms of the severe escalation of geopolitical tensions, the impact of elevated commodity prices on growth and inflation in a context of major economies’ tightening labour markets and the potential withdrawal of some accommodative monetary policies.

II. ANNEX

1. Real-Estate Portfolio

	Property	Location	Size (m^2)	Main usage
Switzerland	Taverney	Geneva	42,117	Residential
	Prulay	Geneva	2,992	Residential
	Carl-Vogt	Geneva	1,311	Residential
France	Opéra	Paris	5,494	Commercial
	Notre-Dame-des- Victoires	Paris	5,013	Commercial
	Malesherbes	Paris	2,536	Commercial
	Lauriston	Paris	2,181	Commercial
	Villiers	Paris	2,382	Commercial
	Ferney	Ferney-Voltaire	8,244	Hotel
	Forêt de Vauchassis	Troyes	769 ha	Timberland
	Forêt de Gergy	Chalon-sur-Saône	728 ha	Timberland
	Forêt d'Avril	East of France	342 ha	Timberland
	Forêt du Miaule	East of France	250 ha	Timberland
Germany	Mauerstrasse	Berlin	3,981	Commercial
UK	Dean Farrar Street	London	2,830	Commercial
	Queen Anne's Gate	London	2,311	Commercial

FINANCIAL STATEMENTS

III. Audit Opinion

Helsinki, 16 May 2022

External Auditors' Opinion

on the Financial Statements of the Pension Fund of the European Organization for Nuclear Research (CERN) for the year ended 31 December 2021

To the Council of CERN

Audit opinion on the financial statements of the CERN Pension Fund

We have audited the financial statements of the Pension Fund of the European Organization for Nuclear Research (CERN) for the year ended 31 December 2021, issued under document reference *CERN/FC/6574-CERN/3643* dated 31 March 2022. These financial statements comprise statement of financial position, statement of the financial performance, cash flow statement, statement of changes in net assets available for benefits as well as the notes to the financial statements.

In our opinion, the financial statements give a true and fair view of the financial position of the Pension Fund of the European Organization for Nuclear Research as at 31 December 2021, of its financial performance and of its cash flows for the year ended, in accordance with International Public Sector Accounting Standards (IPSAS) and International Accounting Standard 26.

Basis for opinion

We conducted our audit in accordance with the International Standards of Supreme Audit Institutions (ISSAIs). Our responsibilities under those standards are further described in the section of our report entitled 'Auditors' responsibilities in the audit of the financial statements'. We are independent of CERN Pension Fund in accordance with the ethical requirements relevant to our audit of the financial statements and we have fulfilled our other ethical responsibilities in accordance with those requirements. We believe that the audit evidence that we have obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis of matter

The Pension Fund´s net assets available for benefits grew to 4 982 MCHF in 2021 from 4 743 MCHF in 2020. The increase of assets was due to positive net result of the investment activities, 309,7 MCHF.

We draw the Council's attention to the net result of membership activities which was 70,9 MCHF negative in 2021.

The liabilities, presented in the Statement of Financial Position under vested capital, decreased to 12 368 MCHF in 2021 from 12 866 MCHF in 2020. This decrease is explained by a change in the variable discount rate which moved to 0,15 % in 2021 from 0,02 % in 2020. Consequently, the Fund's funding ratio increased to 40,3 % in 2021 from 36,9 % in 2020.

Our opinion is not modified in respect of the matter emphasized.

Key audit matters

Key audit matters are those that, in our professional judgement, were of most significance in our audit of the financial statements of the current period. The matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon.

Key audit matters in the audit of the CERN Pension Fund financial statements for 2021 were as follows:

1) Valuation of Pension Fund assets

The valuation of the Fund's assets was addressed by our audit work including analytical reviews and verification of the information provided in the Custodian's reports against relevant account balances. Transactions related to asset balances were tested on a sample basis. For investment property, the valuations of the assets were verified from reports received from independent evaluators.

2) Accuracy of reporting Pension Fund Investments

The matter was addressed in the audit by verification of the information provided in the Custodian's reports against relevant account balances. Investment information reported in the Financial Statements was reconciled with the relevant accounting data and external confirmations.

3) Pension benefits and payments

Payment of pension benefits is the key operation of the Pension Fund. The benefits and payments under membership activities amounted to 320 MCF in 2021.

The matter was addressed by analytical procedures, review of documents, interviews, assessment of the key system controls and by performing substantive testing on benefit payments.

Report on other legal and regulatory requirements

Based on the procedures we performed, nothing has come to our attention, as part of our audit of the financial statements that causes us to believe that the transactions of the CERN Pension Fund were not made, in all significant respects, in accordance with the relevant Pension Fund regulations.

Information other than the financial statements and auditors' report thereon

The CERN Pension Fund Management is responsible for the other information, included in the Pension Fund Annual Report that comprises the Pension Fund Governing Board Report and an Extract of the Actuary's Report on the Fund as at 31 December 2021, as well as the financial statements and our auditor's report thereon. Our opinion on the financial statements does not cover the other information and we do not express any form of assurance conclusion thereon. However, in connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If based on the work we have performed we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities for the financial statements

The CERN Pension Fund Management is responsible for the preparation and fair presentation of the financial statements in accordance with IPSAS and for such internal control as it determines to be necessary to allow the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Management is responsible for assessing the ability of CERN Pension Fund to continue as a going concern, disclosing, as applicable, matters related to the going concern and using the going-concern basis of accounting unless the Management intends either to liquidate CERN Pension Fund or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the financial reporting process of the Organization.

Auditors' responsibilities in the audit of the financial statements

Our objectives are to obtain reasonable assurance as to whether the financial statements as a whole are free from material misstatements, whether due to fraud or error, and to issue an audit report that includes our opinion. Reasonable assurance means a high level of assurance but is not a guarantee that an audit conducted in accordance with the ISSAIs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or taken together, they could reasonably be expected to influence the economic decisions of users taken based on these financial statements.

As part of an audit in accordance with the International Standards on Auditing, we exercise professional judgment and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement in the financial statements, whether due to fraud or error, design and perform audit procedures that are responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than the risk of not detecting one resulting from error, as fraud may involve collusion, forgery, intentional omission, misrepresentation or the overriding of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for expressing an opinion on the effectiveness of the internal control of CERN Pension Fund.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Management.

- Draw conclusions as to the appropriateness of the Management's use of the going- concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists in relation to events or conditions that may cast significant doubt on the ability of CERN Pension Fund to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause CERN Pension Fund to cease as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves a fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Sami Yläoutinen
Auditor General

Christa Laurila
Principal Financial Auditor

Helsinki, 16 May 2022

IV. Financial Statements

1. Statement of Financial Position

(in kCHF)	Note	As at 31 December 2021	2020
Assets			
Cash and Cash Equivalents	5	750,506	424,181
Short-Term Deposits	6	60,000	60,000
Settlements Receivable		12,538	66,689
Sundry Debtors	7	5,892	5,427
Other Receivables	8	7,005	5,178
Derivatives	9	93,287	87,470
Bonds	10	981,510	977,784
Equities	11	823,880	1,054,074
Investment Funds	12	1,408,799	1,332,949
Total Financial assets		4,143,417	4,013,752
Investment Property	13	871,003	800,503
Total Non-Financial assets		871,003	800,503
Total assets		5,014,420	4,814,255
Liabilities			
Settlements Payable		-	861
Sundry Creditors	14	10,741	12,265
Other Payables	15	3,916	4,559
Derivatives	9	18,102	53,642
Total liabilities		32,759	71,327
Net assets available for benefits		4,981,661	4,742,928

(in kCHF)	Note	As at 31 December 2021	2020
Vested pension capital **			
Transfer values of active members or current value of deferred pensions (without future adjustment)		6,744,359	7,102,752
Mathematical reserves of the beneficiaries		5,623,996	5,763,107
Vested pension capital		12,368,355	12,865,859
Technical deficit		(7,386,694)	(8,122,931)
Funding Ratio		40.3%	36.9%

[**]Extract of Actuary's Report – see section VI

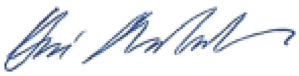
2. Statement of Financial Performance

(in kCHF)	Note	Year ended 31 December 2021	2020
Investment Income			
Financial Assets			
Dividend Income	16	83,643	42,598
Interest Income	17	20,787	13,447
Unrealised Gains/(Losses) on Financial Assets at Fair Value Through Profit & Loss	18	157,710	239,188
Realised Gains/(Losses) on Financial Assets at Fair Value Through Profit & Loss	19	37,841	(97,134)
Non-Financial Assets			
Investment Property Income and Gains/(Losses)	20	94,567	111,938
Foreign Exchange Gains/(Losses)	21	(11,445)	139,680
Total Investment Income/(Loss)		383,103	449,717
Investment Expenses			
Financial Assets			
Investment Management Fees	22	45,296	37,496
Custody Fees and Administration of Securities		511	413
Transaction Costs		2,223	1,893
Taxation		259	215
Non-Financial Assets			
Investment Property Expenditure	23	12,128	7,405
Investment Related Expenditure		2,996	2,408
Total Investment Expenses		63,413	49,830
Net Investment Income/(Loss)		319,690	399,887
Other Expenses			
Bank Charges		17	38
Other Financial Expenses	24	4,151	2,854
Administration Costs	25,33	5,793	5,567
Total Other Expenses		9,961	8,459
Change in Net Assets before Membership Activities		309,729	391,428
Membership Activities	26		
Contributions			
Member Contributions		65,775	64,881
Employer Contributions		117,630	116,693
Employer Special Contributions		61,400	61,400
Purchase of additional years of membership		2,890	3,262
Indemnities received from third parties		61	-
Compensations	27	652	192
Procurement of entitlement to pension for surviving spouse paid by members	28	183	80
Total Contributions		248,591	246,508
Benefits and Payments			
Retirement pensions		245,798	248,023
Disability pensions		1,610	1,818
Surviving spouse pensions		46,569	44,739
Orphans pensions		1,306	1,282
Family allowances		13,087	13,401
Ex gratia payments granted		66	66
Transfer values paid to members	29	10,738	12,402 *
Transfer values paid to other schemes	30	1,918	1,897 *
Amounts pending selection from members	31	(1,629)	663 *
Contributions paid to other schemes		124	165
Total Benefits and Payments		319,587	324,456
Net Membership Activities Cost		(70,996)	(77,948)
Net Increase/(Decrease) in Net Assets During Year		238,733	313,480
Net Assets Available for Benefits at Beginning of Year		4,742,928	4,429,448
Net Assets Available for Benefits at End of Year		4,981,661	4,742,928

** Re-stated*

3. Cash Flow Statement

(in kCHF)	Note	Year ended 31 December 2021	2020
Cash flows from membership activities			
Contributions and other receipts		247,815	246,331
Benefits and other payments		(320,961)	(323,975)
Net cash flows from membership activities		(73,146)	(77,644)
Cash flows from investing activities			
Financial Assets			
Purchases of Bonds		(823,760)	(675,316)
Purchases of Equities		(712,882)	(767,382)
Purchases of Investment Funds		(253,118)	(356,867)
Proceeds from sale of Bonds		781,994	683,588
Proceeds from sale of Equities		1,049,233	629,672
Proceeds from sale of Investment Funds		368,210	272,375
Net payments from Derivatives		(94,801)	36,198
Dividends received		82,245	40,861
Net Interest received		12,439	14,450
Non-Financial Assets			
Investment Property payments		(18,862)	(14,800)
Purchases of Investment Property		(16)	(9)
Investment Property receipts		27,917	28,285
Tax reimbursements		996	1,885
Management and Custody Fees paid		(3,397)	(21,204)
Administrative and other Operating expenses paid		(11,716)	(10,106)
Net cash flows from investing activities		404,482	(138,370)
Net (decrease) increase in cash and cash equivalents		331,336	(216,014)
Cash at beginning of the year		424,181	646,602
Exchange gains /(losses) on cash and cash equivalents		(5,011)	(6,408)
Cash at end of the year		750,506	424,181



4. Statement of Changes in Net Assets Available for Benefits

(in kCHF)	Note	2021	2020
Balance as at 1 January		4,742,928	4,429,448
Employer Contributions		117,630	116,693
Member Contributions		65,775	64,881
Employer Special Contributions		61,400	61,400
Purchase of additional years		2,890	3,262
Indemnities and Compensations		713	192
Procurement of Entitlement to pension for surviving spouse paid by members		183	80
Benefits paid		(308,436)	(309,329)
Transfer values and contributions paid		(11,151)	(15,127)
Investment Income/(Loss)		383,103	449,717
Investment Expenses		(63,413)	(49,830)
Other Expenses		(9,961)	(8,459)
Balance as at 31 December		4,981,661	4,742,928

V. Notes to the Financial Statements

1. General Information

1.1. Fund description

Under Chapter IV of the CERN Staff Rules and Regulations, the European Organization for Nuclear Research (CERN), which has its seat in Geneva, is responsible for the social insurance coverage of its staff. Thus it set up in 1955 a pension fund which constitutes the CERN personnel's social protection for disability, old age and death.

The governance structure of the Fund and its relations with the Council and the Director General of CERN are defined in the Rules of the Pension Fund ("the Rules," available at: https://pensionfund.cern.ch). The Rules and Regulations of the Fund are approved by CERN Council.

The Rules state that *"The purpose of the Fund is to insure its members and beneficiaries as well as the members of their families against the economic consequences of the disability and old age of its members and of the death of its members and beneficiaries"* (Art. I 1.01).

With respect to the status of the Fund within the Organisation, according to the Rules, *"The Fund is an integral part of CERN, and, as such, has no separate legal personality and is under the supreme authority of Council"* (Art. I 2.01). In addition, *"The Fund shall enjoy operational autonomy within CERN and shall be managed in accordance with the framework set out in the Rules and Regulations"*. (Art. I 2.02).

Regarding the oversight and management of the Fund, Article I 2.04, states that

"1. The oversight of the Fund shall be entrusted to the Governing Board, assisted and advised by the Investment Committee and the Actuarial and Technical Committee.

2. The management of the Fund shall be entrusted to the Chief Executive Officer of the Fund, hereinafter referred to as "the Chief Executive Officer."

Article I 2.03 of the Rules further provides that the assets of the Fund shall be held separately from those of CERN and shall be used solely for the purpose of the Fund.

The Fund operates as a defined-benefit scheme. The members of the personnel of CERN and the members of the personnel of the European Southern Observatory (ESO), which has its seat in Munich, are members of the CERN Pension Fund. Conditions relating to the admission of ESO staff to the Fund are set out in the CERN/ESO Agreement.

Pensions are calculated in the following manner:

For members who joined the Fund on or before 31 December 2011, 2% of the Basis for the Calculation of Benefits, as set out in Article II 1.08 of the Rules, for each year of membership, up to a maximum of 35 years;

For members who joined the Fund on or after 1 January 2012, 1.85% of the Basis for the Calculation of Benefits, as set out in Article II 1.08, of the Rules, for each year of membership, up to a maximum of 37 years and 10 months.

The retirement age is as follows:

i. For members who joined the Fund on or before 31 December 2011: 65 years;

ii. For members who joined the Fund on or after 1 January 2012: 67 years.

The entitlement to a pension begins after a minimum of five years' contributions.

1.2. Funding arrangements

According to the Rules, the resources of the Fund derive from (a) contributions from CERN and ESO, (b) contributions from its members, (c) the income from the investment of its assets, and (d) gifts and legacies. The contributions are expressed as a percentage of each member's reference salary, which is equal to the basic remuneration for 40 hours' work per week multiplied by a coefficient set out in Annex A to the Rules. Contributions are apportioned between the member and the participating Organizations as follows:

i. For members who joined the Fund on or before 31 December 2011: member: 11.33%; Organization: 22.67%; total: 34%;

ii. For members who joined the Fund on or after 1 January 2012: member: 12.64%; Organization: 18.96%; total: 31.6%.

1.3. Termination terms

When membership of the Fund terminates before the applicable age of retirement for a reason other than death or total disability, a transfer value is calculated on the basis of the reference salary at the date of termination:

i. Less than five years of service: where the member has less than five years of service, the transfer value is paid into another pension scheme or to the member himself;

ii. Between five and ten years of service: the member has the choice between a deferred retirement pension, or payment into another pension scheme, or, if the latter option is not possible, to himself;

iii. Ten or more years of service: the member has the choice between a deferred retirement pension, and payment into another pension scheme, or, if the latter option is not possible, into a private insurance scheme offering comparable guarantees.

Payment of a transfer value extinguishes any right to a pension, except that for partial disability that is already being paid.

1.4. Significant Activities for the period

There were no significant activities during the year.

1.1.1. Beneficiaries

As at 31 December 2021 the number of beneficiaries was 3,673 (3,673 as at 31 December 2020) unchanged from the prior year.

1.1.2. Members

As at 31 December 2021 the number of members of the Fund was 3,961 (CERN: 3,437 and ESO: 524) compared to 3,902 (CERN: 3,391 and ESO: 511) as at 31 December 2020. This represents an increase of 1.5%.

1.5. Investment policy

The Fund's principles governing the investment policy are set out in the Statement of Investment Principles CERN/PFGB/80.5d/Rev.2/A which is approved by the PFGB.

The Fund strives to maximise returns while remaining below a maximum level of risk. The maximum level of allowable risk is referred to as the "risk limit".

The Fund's portfolio is constructed and managed with the objective of remaining at all times within the risk limits approved by the PFGB, while striving to attain the Fund's investment return objective.

When selecting and managing investments, the Fund considers adapting the time horizon to the market conditions or to the circumstances of the Fund. In addition, the requirement for active management and the sensitivity of the risk and return to market cycles are also considered.

The Fund may invest in a wide range of asset classes including listed equity, government and non-government debt, currencies, money market instruments, property, commodities, private equity/debt. The Fund may also invest in strategies with absolute return focus. Investments may be undertaken directly (internally), or indirectly (e.g. via funds or investment agreements), in physical assets or derivatives.

2. Summary of Significant Accounting Policies

2.1. Basis of preparation

The CERN Pension Fund Financial Statements for the financial year ended 31 December 2021 have been prepared on a going-concern basis and pursuant to Article I 4.02 of the Rules of the Pension Fund, in accordance with International Public Sector Accounting Standards (IPSAS) and International Accounting Standard 26, Accounting and Reporting by Retirement Benefit Plans, as there is no such equivalent IPSAS. The preparation of financial statements in conformity with IPSAS requires the use of certain critical accounting estimates. It also requires the Fund to exercise its judgement in the process of applying the Pension Fund's accounting policies. The areas involving a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the financial statements are disclosed under note 3. If such estimates and assumptions deviate from the actual circumstances, the original estimates and assumptions will be modified as appropriate in the year in which the circumstances change.

At its meeting on 7 April 2022 the PFGB approved the submission of the CERN Pension Fund Annual Report and Financial Statements for 2021 to CERN Council, via the Finance Committee, for approval and discharge.

The accounting policies set out below have been applied consistently by the Fund and throughout all periods presented in these financial statements.

The following new standards, that are issued but not yet effective, up to the date of issuance of the Fund's financial statements, are disclosed below. The Fund intends to adopt these standards, if applicable, when they become effective:

i. IPSAS 41, Financial Instruments (will replace IPSAS 29) – effective January 1, 2023.

ii. IPSAS 42, Social Benefits – effective January 1, 2023.

Once effective, the above standards are not expected to have any effect on the amounts in the Statement of Financial Position, Statement of Financial Performance, Cash Flow Statement nor the Statement of Changes in Net Assets Available for Benefits.

2.2. Measurement base

The measurement base adopted is that of historical cost as modified by the revaluation of financial assets and financial liabilities (including derivative financial instruments) and investment property at fair value through profit or loss.

2.3. Foreign currency translation

2.3.1. Functional and presentation currency

Pursuant to Article I 4.02 of the Rules of the Pension Fund, the unit of account of the Pension Fund is the Swiss franc which is the functional and presentation currency.

2.3.2. Transaction and balances

At each balance sheet date monetary assets and liabilities that are denominated in foreign currencies are translated into Swiss francs at the exchange rates ruling on that date. Foreign currency transactions are accounted for at the exchange rates prevailing at the date of the transaction. Gains and losses arising on translation are shown separately in the Statement of Financial Performance for the period.

2.4. Classification of assets and liabilities

The CERN Pension Fund is an entity that, inter alia, manages assets used to pay pensions. As such, the assets and liabilities are disclosed in the Statement of Financial Position in an order that broadly reflects their relative liquidity.

2.5. Cash and cash equivalents

Cash and cash equivalents include cash in hand, deposits held at call with banks and other short-term highly liquid investments with original maturities of three months or less, as well as margin accounts with brokers that cover margin calls on derivative positions.

2.6. Financial assets

Financial assets are recognised on the Fund's Statement of Financial Position when the Fund becomes a party to the contractual provisions of the instrument.

The Fund classifies its financial assets in the following categories: at fair value through profit or loss and loans and receivables. The classification depends on the purpose for which the financial assets were acquired. Management determines the classification of its financial assets at initial recognition.

2.6.1. Financial assets at fair value through profit or loss

The Fund's business is investing in assets with a view to profiting from their total return in the form of interest, dividends, distributions and increases in fair value.

A. Classification

The Fund classifies its investments in cash and cash equivalents, debt, equity securities, investment funds and derivatives as financial assets at fair value through profit or loss. Cash and cash equivalents, bonds, equities and investment funds are designated by the Fund at fair value through profit or loss. Derivatives are classified as assets held for trading.

The portfolio of investment funds is categorized as financial assets designated at fair value through profit or loss at inception and is shown under Investment Funds on the Statement of Financial Position.

B. Recognition and derecognition

Purchases and sales of unquoted and quoted investments are recognised and derecognised on trade date where a purchase or sale is made under a contract whose terms require delivery within the timeframe established by the market concerned.

Financial assets are derecognised when the rights to receive cash flows from the investments have expired or have been transferred and the Fund has transferred substantially all risks and rewards of ownership.

C. Measurement

Financial assets at fair value through profit or loss are initially recognised at acquisition cost. Transaction costs are expensed in the Statement of Financial Performance. Subsequent to initial recognition, all financial assets at fair value through profit or loss are measured at fair value which is based on the last reported bid price (sales price) at the balance sheet date. Unrealised gains and losses arising from changes in the fair value of the "financial assets at fair value through profit or loss" category are presented in the Statement of Financial Performance in the period in which they arise.

Interest, dividends and investment management fees arising from financial assets are shown separately in the Statement of Financial Performance and are not included in Unrealised or Realised Gains/(Losses) on Financial Assets at Fair Value Through Profit and Loss.

2.6.2. Loans and receivables

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. Sundry debtors include recoverable withholding tax levied at source on dividends and reimbursable value added tax paid on investment property transactions, investment property debtors and other due amounts.

Settlements receivable represent amounts due to the Fund for securities sold that have been contracted for but not yet settled or delivered at the balance sheet date.

Other receivables include accrued interest on cash and short-term deposits, dividends receivable and outstanding receipts.

These amounts which do not carry any interest are expected to be received within twelve months and are accordingly stated at their nominal value. Loans and receivables are subsequently carried at amortised cost using the effective interest method less any impairment losses.

2.7. Impairment of financial assets

Financial Assets carried at amortised costs are Loans and Receivables.

The Fund assesses at the end of each reporting period whether there is objective evidence that this group of financial assets is impaired. A financial asset or a group of financial assets is impaired and impairment losses are incurred only if there is objective evidence of impairment as a result of one or more events that occurred after the initial recognition of the asset (a “loss event”) and that loss event (or events) has an impact on the estimated future cash flows of the financial asset or group of financial assets that can be reliably estimated.

Evidence of impairment may include indications that the debtors or a group of debtors is experiencing significant financial difficulty, default or delinquency in interest or principal payments, the probability that they will enter bankruptcy or other financial reorganisation, and where observable data indicates that there is a measureable decrease in the estimated future cash flows, such as changes in arrears or economic conditions that correlate with defaults.

For loans and receivables, the amount of loss is measured as the difference between the asset’s carrying amount and the present value of the estimated future cash flows (excluding future credit losses that have been not been incurred) discounted at the financial asset’s original effective interest rate. The carrying amount of the asset is reduced and the amount of the loss is recognised in the Statement of Financial Performance.

2.8. Offsetting financial instruments

Financial assets and liabilities are offset and the net amount reported in the Statement of Financial Position when there is a legally enforceable right to offset the recognised amounts and there is an intention to settle on a net basis or realise the asset and settle the liability simultaneously.

2.9. Non-financial assets

Those assets where there is no contractual right to receive cash or another financial asset are listed under this heading.

2.9.1. Investment property

Investment property is defined as land, buildings and forests held to earn rental income and capital appreciation and is not occupied by the Fund.

Investment property is measured initially at its cost, including related transaction costs. After initial recognition investment property is carried at fair value, representing open market value determined annually by external valuators with professional qualifications and experience. Fair value is based on active market prices, adjusted, if necessary, for any difference in the nature, location or condition of the specific asset. If the information is not available, the Fund uses alternative valuation methods such as recent prices on less active markets or discounted cash flow projections. Changes in fair values are recorded in the Statement of Financial Performance, as part of Investment Property Income.

The costs of the day-to-day running of the properties, e.g. repairs and maintenance, are recognised in the Statement of Financial Performance as incurred. Expenditure incurred in the replacement or renovation of part of an existing investment property that is 5% or more of the value of that property is recognised in the carrying amount, only when it is probable that future economic benefits associated with the item will flow to the Fund and the cost of the item can be reliably measured.

2.10. Other financial liabilities

Other financial liabilities include Settlements Payable, Sundry Creditors and Other Payables.

Settlements payable represent amounts due by the Fund for securities purchased that have been contracted for but not yet settled or delivered at the balance sheet date.

These amounts are not interest-bearing and are due within twelve months. They are initially recognised at their fair value and subsequently measured at amortised cost using the effective interest method.

2.11. Derivative financial instruments and hedging activities

The Fund's activities expose it to the financial risks such as foreign currency risk, interest rate risk and credit risk. Therefore the Fund may use derivative instruments such as foreign exchange forward contracts, interest rate swap contracts and credit default swaps to hedge these exposures. The Fund may also use derivative instruments for investment purposes, principally to gain exposure to specific markets.

Derivatives are initially recognised at fair value on the date on which a derivative contract is entered into and are subsequently re-measured at fair value. Any gains and losses arising from changes in the fair value are recognised in the Statement of Financial Performance. The Fund does not apply hedge accounting.

Derivatives are carried as financial assets when the fair value is positive and as financial liabilities when the fair value is negative.

The Fund may, at a given time, hold the following derivative instruments:

A. Forward contracts

Forward contracts are contractual obligations to buy or sell financial instruments on a future date at a specified price. A forward contract is a non-standardised contract written by the Fund and the counterparty to the agreement. The contracts are collateralised by cash and changes in the forward contracts' value are settled on reset, rollover or closure of the contract. The forward contracts are settled on a gross basis.

B. Options

An option is a contractual arrangement under which the seller (writer) grants the purchaser (holder) the right, but not the obligation, either to buy (a call option) or sell (a put option) at or by a set date or during a set period, a specific amount of securities or a financial instrument at a predetermined price. The seller receives a premium from the purchaser in consideration for the assumption of the future securities price. Options are settled on a gross basis.

C. Swaps

Swaps are contracts to exchange cash (flows) on or before a specified future date based on the underlying value of currencies/exchange rates, bonds/interest rates, commodities, stocks or other assets.

D. Futures

Future contracts are contractual obligations to buy or sell financial instruments on a future date at a specified price established in an organised market. The futures contracts are collateralised by cash and changes in the futures contracts' value are settled daily with the exchange. Futures are settled on a net basis.

E. Credit default swaps

Credit default swaps are contractual obligations under which the seller receives a premium or interest-related payments in return for agreeing to compensate the buyer in the event of a credit event on an underlying reference obligation. Credit events usually include bankruptcy and payment default.

2.12. Provisions

Provisions are recognised when the Fund has a present obligation (legal or constructive) as a result of a past event, it is probable that an outflow of resources embodying economic benefits or service potential will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

2.13. Actuarial liabilities

The PFGB approves the significant actuarial assumptions for the calculation of the actuarial present value of promised retirement benefits at the end of the period, taking advice from an independent actuary concerning the appropriateness of the assumptions. The actuarial present value of promised retirement benefits at the end of the period is included in the Statement of Financial Position under the heading "Vested pension capital".

The actuarial present value of the promised retirement benefits, based on projected remuneration and capitalised pension indexation, is disclosed to indicate the magnitude of the potential obligation on a going concern basis.

In accordance with IAS 26, the actuarial method used to calculate the actuarial commitments is the projected unit credit method (PUC method). The projected unit credit method considers that each service period allows for an additional unit of benefits rights and evaluates each of these units separately to obtain the final value of the liability.

2.14. Revenue recognition

2.14.1. Revenue from exchange transactions

Interest income is recognised on time proportionate basis using the effective interest method;

Rental income is recognised over the term of the lease on a straight line basis;

Dividend income is recognised when the right to receive payment is established.

2.14.2. Revenue from non-exchange transactions

The Fund does not recognise revenue from non-exchange transactions. Non-exchange transactions include administrative support and office accommodation provided free of charge by CERN.

3. Critical Accounting Estimates and Judgements

The Fund makes estimates and assumptions that affect the reported amounts of assets and liabilities. Estimates and judgements are continually evaluated by the Fund, with input from independent experts, and are based on historical experience and other factors, including assumptions about future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results.

The most significant estimates made during the period are outlined below. The Fund has assessed the impact of the COVID-19 pandemic on these estimates and assumptions and has not been required to make any significant judgements for the financial years 2021 and 2020.

3.1. Actuarial assumptions

The liabilities of the Fund, in respect of promised benefits to be paid, have been determined using methods relying on actuarial estimates and assumptions. These assumptions reflect the long-term nature of future benefits. Changes in these estimates and assumptions could materially affect liabilities in respect of benefits.

The basis for the Fund's actuarial assumptions is set out under note 2. "Summary of Significant Accounting Policies".

The table hereafter shows the significant actuarial assumptions proposed by the Fund's Actuary and approved by the PFGB at its meeting of 3 February 2022 (CERN/PFGB/95.4a) and also those used in the corresponding period. The reference discount rate as at 31 December 2021 is the AON Swiss AA Corporate Bond Yield Curve. As a result, the discount rate applied for 2021 is 0.15% when expressed as a single equivalent rate. In 2020, the rate was 0.02%, when expressed as a single equivalent spot rate. All other assumptions used as at 31 December 2021 are those assumptions that were approved for the 1 January 2022 Periodic Actuarial Review. The assumptions used for 31 December 2020 were those adopted for the 1 January 2019 Periodic Actuarial Review. The assumptions are presented as single equivalent spot rates or a liability-weighted average for simplicity.

Actuarial Assumptions	2021	2020
Discount Rate	0.15%*	0.02%*
Remuneration increase linked to inflation	1.10%	1.23%**
Indexation of pensions linked to inflation	1.10%	1.23%**
Remuneration increase linked to career change	1.55%***	1.40%***
Mortality and disability tables	94% ICSLT2018 GEN	77% ICSLT2013 GEN

**The underlying best estimate assumption is the AON Swiss AA Corporate Bond Yield Curve. The single equivalent spot rate approximates this underlying curve.*

***The underlying best estimate assumption has the following term structure: 0.70% p.a. until 2021, 0.90% p.a. until 2026, 1% p.a. until 2031 and 1.40% from 2032. The single equivalent spot rate describes this underlying term structure.*

**** Remuneration increase linked to career change is 1.55% p.a. when expressed as a liability-weighted average. The 2021 underlying assumption is 0.0% p.a. for CERN Fellows, 2% p.a. for ESO Fellows, and age dependent groupings (between 1.2% and 2.0% p.a.) specific to CERN and ESO for non-Fellows. i.e. the best estimate assumption that was used for the Periodic Actuarial Review as at 1 January 2022. The 2020 underlying assumption is 0% for Fellows and for non-Fellows a 2.0% to 1.2% linear reduction between ages 18 to 64 i.e. the best estimate assumption that was used for the Periodic Actuarial Review as at 1 January 2019.*

Buck Consultants Limited London is the Fund's Actuary. An extract of the Actuary's Report on the Fund as at 31 December 2021 is included in section VI for information purposes.

In 2021, the Fund's Actuary did not propose any change to the reference used for the discount rate assumption, however the yield curve data was different compared to 2020. The other actuarial assumptions were updated compared to 2020 to reflect the Best Estimate assumptions used in the 1 January 2022 Periodic Actuarial Review. The updated assumptions were accepted by the PFGB. The sensitivity of results as at 31 December 2021 to changes in the discount rate, indexation of pensions and indexation of remuneration, remuneration increase linked to career change, mortality tables and other assumptions are set out in section 2 of the extract of the Actuary's report.

In 2021 the discount rate used to determine the present value of future promised benefits was 0.15% (0.02% in 2020). The effect of this change was a decrease in liabilities of 350,107 kCHF. In 2021 the indexation of pensions and remuneration increase linked to inflation was 1.10% (1.23% in 2020 when expressed as a liability-weighted average). The effect of these change was a decrease of 308,192 kCHF. The remuneration increase linked to career change in 2021 was 1.40% when expressed as a liability-weighted average (1.40% in 2020). The effect of this change was a decrease in liabilities of 33,088 kCHF. Following an analysis of the mortality experience of the Fund by the Actuary, the mortality assumption in 2021 was 94% of the ICSLT2018 base generational tables (77% of the ICSLT2013 generational tables in 2020). The effect of this change was an increase of 101,910 kCHF in liabilities.

During the year the Actuary reviewed other assumptions relating to disability, withdrawal rates, proportion married and contract transitions. The effect of these changes are detailed in section 2 of the extract of the Actuary's report.

Total liabilities, as at 31 December 2021, were 12,368 MCHF (12,866 MCHF as at 31 December 2020).

3.2. Fair value of Investment Property

The fair value of the Fund's investment property is considered to be its market value. As at 31 December 2021 the fair value of Investment Property was 871,003 kCHF (800,503 kCHF as at 31 December 2020).

The fair values of the Investment Property were determined based on valuations performed by independent valuers, as at 31 December 2021 and 2020. The fair values of the properties (excluding the forests) have been determined using a sales comparison approach, where possible, and supported by a discounted cash flow method, in order to arrive at the most reliable estimate of the fair value within a range of reasonable fair value estimates. The independent valuers use assumptions that are mainly based on market conditions existing at each balance sheet date. The fair values of the forests have been determined by an expert in the forest industry, using market practice for valuing forest land i.e. taking into account current market prices for forest land and inventory.

The principal considerations underlying the estimation of fair value are those related to:

- Current or recent prices of similar properties;
- Appropriate discount rates ranging from 2.10% to 5.25% (2.92% to 5.75% in 2020);
- The receipt of contractual rentals;
- Expected future market rentals;
- Void periods;
- Maintenance requirements;
- Current market prices for forest inventory.

These valuations are regularly compared to actual market yield data, and actual transactions and those reported by the market. The expected future market rentals are determined on the basis of current market rentals for similar properties in the same location and condition.

3.3. Fair value of financial assets not quoted in an active market

In arriving at the fair value of financial assets not quoted in an active market, the Fund considers factors such as industry performance, company performance, quality of management, the price of the most recent financing round, exit opportunities which are available, liquidity preference, comparable market transactions, discounted cash-flows, earnings multiples and net present value analysis. The maximum use of market inputs is made with as little reliance as possible on entity-specific inputs.

3.3.1. Investment Funds

As at 31 December 2021 the Fund had holdings in investment funds totalling 1,076,885 kCHF (938,016 kCHF in 2020) that are not quoted in an active market. Many of these investment funds have the same reporting period as the Fund. Consequently, in some cases, audited financial statements attesting, inter alia, to the value of the Fund's investments in these funds were not available at the reporting date. Where audited statements were not in evidence, the Fund used unaudited statements as at 31 December 2021 provided by the independent administrators or fund. In the case of 124 funds (92 in 2020), unaudited statements as at 30 September 2021 were used, as adjusted for capital movements between the last received statements and 31 December 2021.

Valuations totalling 815,615 kCHF (486,931 kCHF in 2020) were based on unaudited statements. These holdings are included in note 12 "Investment Funds".

The Fund has the following outstanding commitments to Private Equity, Real Estate and Private Debt funds as at 31 December:

	2021		2020	
(in kCHF)	Total Net Asset Value	Outstanding Commitment	Total Net Asset Value	Outstanding Commitment
US Private Equity	177,800	117,428	143,182	33,660
European Private Equity	173,788	74,596	148,405	44,477
Real Estate funds	71,545	31,538	67,372	16,326
Private Debt	56,155	38,200	40,731	21,120
Total	479,288	261,762	399,690	115,583

3.3.2. Over- the-counter derivatives instruments

The fair value of over-the-counter derivatives instruments is determined using quoted prices at the balance sheet date. When an instrument or its equivalent does not have a market price, its valuation is determined using a valuation model that is based on observable market inputs.

4. Financial Risks

4.1. Financial risk factors

The Pension Fund's activities expose it to a variety of financial risks: market risk (including price risk, foreign exchange risk, interest rate risk), credit risk and liquidity risk. The Fund's overall risk management programme seeks to maximise the returns derived for the level of risk to which the Fund is exposed and seeks to minimise potential adverse effects on the Fund's financial performance. The Fund uses derivative financial instruments to both hedge and to create certain risk exposures.

All securities investments present a risk of loss of capital. The maximum loss of capital on bonds, equities, investment funds and purchased options is limited to the fair value of those positions. The maximum loss of capital on written put options, long futures and forward currency contracts is limited to the notional contract values of those positions. On written call options and short future positions the maximum loss of capital can be unlimited.

The management of these risks is carried out by the Fund in line with investment guidelines approved by the PFGB. The Fund uses different methods to measure and manage the various types of risk to which it is exposed; these methods are explained below.

4.1.1. Market risk

The risk management policy of the Fund is defined in the Statement of Investment Principles. It is based on setting a risk measure, an annual risk limit and managing the asset allocation exposure compatible with the risk limit and with the return objective.

The Fund uses CVaR (Conditional Value at Risk) to measure and monitor its market risk. The CVaR of a certain confidence level measures the expected return of the corresponding tail of the return distribution. 1 Year 5% CVaR is defined as the annual expected return in the worst 5% of the return distribution of a portfolio. CVaR is also called expected shortfall.

The risk measure of 1 Year 5% CVaR is approved by the PFGB, based on the recommendation of the IC. The annual 1 Year 5% CVaR risk limit of -8% for 2021 was set by the PFGB taking into account the actuarial return considerations. The risk exposure of the Strategic Asset Allocation (SAA) and the Fund is estimated and reported to the IC by the independent risk consultant on a quarterly basis and compared to the risk limit set by the PFGB. In addition the Fund's Risk Manager monitors the expected risk relative to the risk limit on a daily basis.

During 2021 all quarterly evaluations of the estimated 1 Year 5% CVaR showed that the Fund was within the risk limit of -8%, taking into account the 2 percentage point margin referred to in the Risk Framework of the Fund that was approved by the PFGB in November 2017. This margin was utilised throughout 2021 because of the market conditions observed. As at 31 December 2021, the estimated 1 Year 5% CVaR of the Fund was -9.5% (-9.5% as at 31 December 2020), according to data provided by the Fund's independent risk consultant (and not the data included in these Financial Statements).

A. Price risk

The Fund is exposed to securities and derivative price risk. This arises from investments held by the Fund for which prices in the future are uncertain.

Where assets of the Fund are denominated in currencies other than the Swiss franc, the price initially expressed in foreign currency and then converted into Swiss franc will also fluctuate because of changes in foreign exchange rates. Paragraph B: “Foreign exchange risk” sets out how this component of price risk is managed and measured.

Some of the Funds’ financial assets and liabilities are exposed to market price risk. The fair value of these assets as at 31 December is as follows:

(in kCHF)	2021	2020
Assets		
Bonds	981,510	977,784
Equities	823,880	1,054,074
Investment Funds	1,408,799	1,332,949
Derivatives	93,287	87,470
Total Financial assets	3,307,476	3,452,277
Liabilities		
Derivatives	18,102	53,642
Total Financial liabilities	18,102	53,642

B. Foreign exchange risk

The Fund is exposed to foreign exchange risks arising essentially upon investments in assets denominated in foreign currencies as outlined in the table below. As a general policy, the Fund hedges its exchange rate risk to the level of 100% of its exposure, but may alter the hedge ratios depending on tactical considerations. The Fund uses three month rolling forward foreign exchange contracts and currency options to cover the currency exposure of existing and anticipated investments in foreign currency. The value of currency forward contracts as at 31 December 2021 is disclosed in note 9. “Derivatives”.

As at 31 December 2021, given a shift of 10% in foreign currency rates against the Swiss Franc with all other variables held constant, the Statement of Financial Performance would have shown a higher/lower result of 3,548 kCHF (12,361 kCHF as at 31 December 2020).

The table below summarises the Fund’s net assets that are denominated in a currency other than the Swiss franc. The table excludes the forward foreign exchange contracts that are used to hedge foreign exchange rate exposure:

(in kCHF)	2021	2020
US dollar	2,005,527	2,025,874
Euro	1,813,267	1,718,975
Pound sterling	237,041	217,953
Japanese yen	88,026	100,413
New Zealand dollar	32,299	31,125
Swedish krona	17,213	19,472
Other currencies	56,259	45,906
Total	4,249,632	4,159,718

The Fund uses year-end exchange rates supplied by its custodian. The source of these rates is Reuters World Markets.

The table below shows the rates used by the Fund at 31 December to covert the major currencies in the Fund's portfolio to the Swiss franc:

Currency	2021	2020
Euro	1.0362	1.0816
Pound sterling	1.2341	1.2083
US dollar	0.9311	0.8840

C. Cash flow and fair value interest rate risk

Fair value interest rate risk arises from the effects of fluctuations in the prevailing levels of market interest rates on the fair value of financial assets and future cash flows. The Fund holds some fixed income investments and cash on short-term deposits. The duration of the fixed income investments is regulated by investment guidelines. The Fund may use derivatives to hedge interest rate exposure.

The analysis below summarises the maturity range of the Fund's principal fixed income portfolio at 31 December and is a measure of the sensitivity of the fair value of the Fund's fixed interest securities to changes in market interest rates:

	2021	2020
Global Fixed Income	982 MCHF	978 MCHF
0 - 1 year	0%	0%
1 - 3 years	9%	1%
3 - 5 years	16%	10%
5 - 7 years	20%	22%
7 - 10 years	27%	35%
> 10 years	28%	32%
Total	100%	100%

The duration of the above securities, which is the weighted-average term to maturity of the cash flows, was 9.37 years at 31 December 2021 (2020: 9.32 years).

The following table indicates the Fund's exposure to fair value interest rate risk in respect of cash and short-term deposits:

(in kCHF)	2021	2020
Swiss franc	89,318	89,539
Total	89,318	89,539

The Fund also holds cash, a limited number of floating rate debt and derivatives that expose the Fund to cash flow interest rate risk.

As at 31 December 2021, if interest rates on these investments had been 1% higher with all other variables held constant, the net assets available for benefits at the end of the year would have been higher by 7,425 kCHF (5,206 kCHF higher as at 31 December 2020).

4.1.2. Credit risk

The Fund is exposed to credit risk, which is the risk that the counterparty will be unable to pay amounts in full when they fall due.

Credit risk arises from cash and cash equivalents short-term deposits, derivative financial instruments and bonds, as well as credit exposures including outstanding receivables and committed transactions.

All transactions in listed securities are contracted using approved brokers and settled/paid for upon delivery. The risk of default is considered minimal, as delivery of the securities sold is only made once the custodian has received payment. Payment is made on a purchase once the securities have been received by the custodian. The trade will fail if either party fails to meet its obligation.

The Fund invests in fixed income securities issued by various bodies such as governments, agencies or corporations. These holdings are managed in line with the investment guidelines to ensure issuer quality and diversification. In addition, the Fund limits the amount of credit exposure to any financial institution through diversification of its counterparties and strict monitoring of open receivables on derivatives instruments. If a derivative position is showing a profit, the Fund may ask for collateral or force the reset of the position.

The analysis below summarises the issuer quality of the Fund's principal fixed income portfolio at 31 December:

	2021	2020
Global Fixed Income	982 MCHF	978 MCHF
AAA	35%	18%
AA	28%	22%
A	12%	20%
BBB	22%	31%
BB/B	3%	8%
NR/NA	0%	1%
Total	100%	100%

Source of issuer data: provided by Custodian (minimum of Standards & Poor's and Moody's)

The maximum exposure to credit risk at 31 December is set out below:

(in kCHF)	2021	2020
Bonds	981,510	977,784
Cash and Cash Equivalents	750,506	424,181
Fixed Income funds	120,291	194,992
Private Debt	56,155	40,731
Short Term Deposits	60,000	60,000
Derivatives	93,287	87,470
Settlements Receivable	12,538	66,689
Other assets	12,897	10,605
Total	2,087,184	1,862,452

No material financial assets were past due as at 31 December 2021.

4.1.3. Liquidity risk

Liquidity risk is the risk that the Fund may not be able to generate sufficient cash resources to settle its obligations in full as they fall due, or can only do so on terms that are materially disadvantageous. In addition to its commitments to pay monthly benefits, the Fund is exposed to the periodic settlement of margin calls and gains and losses on derivative positions. The hedging of exchange rate risk can generate substantial cash flows that are difficult to predict. Therefore the Fund aims to maintain sufficient levels of cash and cash equivalents to meet its short-term liabilities. The Fund does not take leveraged positions on the market.

The table below analyses the Fund's financial liabilities (excluding the derivative financial instruments in a loss position) into relevant maturity groupings, based on the remaining period at the balance sheet date to the contractual maturity date:

(in kCHF)	< 7 days	1-3 months	3-12 months
As at 31 December 2021			
Settlements payable	-		
Members and Beneficiaries	5,208		
Investment property deposits			1,849
Taxes payable		312	
Investment property creditors		2,852	
Reimbursements of contributions	1,312		
Payments Outstanding		2,604	
Total	6,520	5,768	1,849
As at 31 December 2020			
Settlements payable	861		
Members and Beneficiaries	6,840		
Investment property deposits			1,745
Taxes payable		155	
Investment property creditors		3,065	
Reimbursements of contributions	1,783		
Payments Outstanding		2,776	
Total	9,484	5,996	1,745

The following table analyses the Fund’s derivative financial instruments in a loss position that will be settled on a gross basis into relevant maturity groupings based on the remaining period at the balance sheet to the contractual maturity date:

(in kCHF)	< 1 month	1- 6 months	> 6 months
At 31 December 2021			
Forwards	-	2,816	-
Credit default swaps	-	-	6,664
Swaps	-	-	8,547
Futures	-	-	-
Options	75	-	-
Total	75	2,816	15,211
At 31 December 2020			
Forwards	-	21,263	-
Credit default swaps	-	2,805	2,271
Swaps	12,752	1,256	11,886
Futures	-	1,409	-
Options	-	-	-
Total	12,752	26,733	14,157

4.2. Fair value estimation

The fair value of financial assets traded in active markets (such as trading securities) is based on quoted market prices at the close of trading on the reporting date.

An active market is a market in which transactions for the asset take place with a sufficient frequency and volume to provide pricing information on an on-going basis.

The fair value of assets not traded in an active market is determined using valuation techniques. The Fund uses a variety of methods and makes assumptions that are based on market conditions existing at each year end date. Valuation techniques include the use of recent arm’s length transactions, reference to other instruments that are substantially the same, discounted cash flow analysis, and option pricing models, making maximum use of market inputs and relying as little as possible on entity-specific inputs.

The carrying amounts of the financial assets and liabilities not measured at fair value in the Statement of Financial Position approximate their fair value.

Specific valuation techniques used to value financial instruments include:

i. Quoted market prices or dealer quotes for similar instruments;

ii. Prices sourced from broker quotes, inter-dealer prices or other reliable pricing services;

iii. The present value of the estimated future cash flows using observable yield curves, prices and other available market information;

iv. The latest available valuation received from fund administrators;

v. Other techniques, such as discounted cash flow analysis.

The fair value hierarchy has the following levels:

- Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets that the Fund can access at the measurement date;
- Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly, or indirectly;
- Level 3 inputs are based on unobservable market inputs for the asset or liability.

The level in the fair value hierarchy within which the fair value measurement is categorised in its entirety is determined on the basis of the lowest level input that is significant to the fair value measurement in its entirety. For this purpose the significance of an input is assessed against the fair value measurement in its entirety. If a fair value measurement uses observable inputs that require significant adjustment based on unobservable inputs, that measurement is a Level 3 measurement. Assessing the significance of a particular input to the fair value measurement in its entirety requires judgement, considering factors specific to the asset.

The determination of what constitutes “observable” requires significant judgement by the Fund. The Fund considers observable data to be that market data that is readily available, regularly distributed or updated, reliable and verifiable, not proprietary, and provided by independent sources that are actively involved in the relevant market.

The following table analyses within the fair value hierarchy the Fund’s assets measured at fair value at 31 December 2021:

(in kCHF)	Level 1	Level 2	Level 3	Total
Assets				
Financial assets designated at fair value through profit or loss:				
Cash and Cash Equivalents	124,101	-	-	124,101
Equities	823,818	-	62	823,880
Bonds	-	981,510	-	981,510
Investment Funds	331,914	-	1,076,885	1,408,799
Sub total	1,279,833	981,510	1,076,947	3,338,290
Financial assets held for trading:				
Derivatives	28,441	63,329	1,517	93,287
Sub total	28,441	63,329	1,517	93,287
Total assets at fair value through profit or loss	1,308,274	1,044,839	1,078,464	3,431,577
Liabilities				
Financial liabilities held for trading:				
Derivatives	-	(18,102)	-	(18,102)
Total liablities at fair value through profit or loss	-	(18,102)	-	(18,102)

The following table analyses within the fair value hierarchy the Fund's assets measured at fair value at 31 December 2020:

(in kCHF)	Level 1	Level 2	Level 3	Total
Assets				
Financial assets designated at fair value through profit or loss:				
Cash and Cash Equivalents	-	-	-	-
Equities	1,054,012	-	62	1,054,074
Bonds	-	977,784	-	977,784
Investment Funds	394,933		938,016	1,332,949
Sub total	1,448,945	977,784	938,078	3,364,807
Financial assets held for trading:				
Derivatives	15,986	71,484	-	87,470
Sub total	15,986	71,484	-	87,470
Total assets at fair value through profit or loss	1,464,931	1,049,268	938,078	3,452,277
Liabilities				
Financial liabilities held for trading:				
Derivatives	(1,409)	(43,727)	(8,506)	(53,642)
Total liablities at fair value through profit or loss	(1,409)	(43,727)	(8,506)	(53,642)

Investments whose values are based on quoted market prices in active markets, and are therefore classified within Level 1, include money market funds, listed equities, exchange-traded derivatives and exchange-traded funds.

Financial instruments that trade in markets that are not considered to be active but are valued based on quoted market prices, dealer quotations or alternative pricing sources supported by observable inputs are classified within Level 2. These include government bonds, corporate bonds, and over the counter derivatives. As Level 2 investments include positions that are not traded in active markets and/or subject to transfer restrictions, valuations may be adjusted to reflect illiquidity and/or non-transferability, which are generally based on available market information.

Investments classified within Level 3 have significant unobservable inputs, as they trade infrequently. Level 3 instruments include unlisted investment funds, over the counter derivatives and unlisted equities. As observable prices are not available for these securities, the Fund has used valuation techniques to derive the fair value.

There were no transfers between levels for the year ended 31 December 2021 nor 31 December 2020.

The following table presents the movement in level 3 instruments for the year ended 31 December 2021 by class of financial instrument:

(in kCHF)	Equities	Derivatives	Investment Funds	Total
Opening balance	62	(8,506)	938,016	929,572
Purchases	-	-	249,998	249,998
Sales	-	-	(227,727)	(227,727)
Transfers into level 3	-	-	-	-
Unrealised Gains/(Losses) on Financial Assets at Fair Value Through Profit & Loss	-	-	107,126	107,126
Realised Gains/(Losses) on Financial Assets at Fair Value Through Profit & Loss	-	6,989	9,472	16,461
Closing balance	62	(1,517)	1,076,885	1,075,430

The following table presents the movement in level 3 instruments for the year ended 31 December 2020 by class of financial instrument:

(in kCHF)	Equities	Derivatives	Investment Funds	Total
Opening balance	62	(1,686)	932,592	930,968
Purchases	-		173,053	173,053
Sales	-		(157,243)	(157,243)
Transfers into level 3	-	-	-	-
Unrealised Gains/(Losses) on Financial Assets at Fair Value Through Profit & Loss	-	-	(31,138)	(31,138)
Realised Gains/(Losses) on Financial Assets at Fair Value Through Profit & Loss	-	(6,820)	20,752	13,932
Closing balance	62	(8,506)	938,016	929,572

4.3. Investments exceeding five percent of net assets available for benefits

There were no investments representing five percent or more of net assets available for benefits as at 31 December 2021 nor as at 31 December 2020.

The Fund was invested in a total of 191,924 kCHF, including one exchange-traded fund and one unlisted fund, as at 31 December 2021, each investment representing five percent or more of Investment Funds. (As at 31 December 2020: 244,783 kCHF in one exchange-traded fund and two unlisted funds).

The Fund was invested in one bond of 89,848 kCHF as at 31 December 2021, representing five percent or more of Bonds. (No investments in Bonds represented five percent or more as at 31 December 2020.)

The Fund had currency forward asset positions hedging Euro against Swiss francs and two options, totalling 30,771 kCHF as at 31 December 2021 each representing five percent or more of the Derivatives assets balance. (As at 31 December 2020: 64,049 kCHF representing currency forward positions hedging US dollars against Swiss francs and a credit default swap position).

As at 31 December 2021 the Fund had currency forward liability positions hedging Euro against Swiss francs, five swap liability positions and three credit default swap positions totalling 14,384 kCHF, each representing five percent or more of the Derivatives liabilities balance. (As at 31 December 2020: 40,837 kCHF representing currency forward positions hedging US dollars, Euro and Pound Sterling against Swiss francs and two swap liability positions).

5. Cash and Cash Equivalents

For the purposes of the cash flow statement, cash and cash equivalents comprise the following balances with original maturity of 90 days or less:

(in kCHF)	2021	2020
Current accounts	586,988	364,209
Money Market funds	124,101	-
Deposit accounts	29,318	29,538
Margin accounts with brokers	10,099	30,434
Total	750,506	424,181

The amounts under the heading “Margin accounts with brokers” concern cash collateral pledged with derivative counterparties of the Fund. The cash is held in segregated accounts with the brokers and is callable by the Fund to the extent that collateral balances are in excess of the net fair value liability amount of the open derivative positions held with each broker.

6. Short-Term Deposits

Short-term deposits are made for varying periods, depending on the immediate cash requirements of the Fund and earn interest at the respective short-term rate. The deposits are made for more than 3 months and hence are classified as short-term deposits.

7. Sundry Debtors

(in kCHF)	2021	2020
Recoverable taxes	3,725	3,656
Investment property debtors	2,074	1,612
Other due amounts	93	159
Total	5,892	5,427

8. Other Receivables

(in kCHF)	2021	2020
Accrued interest	53	124
Dividends receivable	868	847
Outstanding receipts	206	96
Payments in advance	5,878	4,111
Total	7,005	5,178

9. Derivatives

The following table shows the types of derivative contracts held by the Fund as at 31 December:

		2021		2020
(in kCHF)	Assets	Liabilities	Assets	Liabilities
Forwards:				
Currency Overlay programme	58,160	(2,816)	48,787	(14,646)
Other	-	-	3,356	(6,617)
Credit default swap	2,200	(6,664)	14,841	(17,828)
Swaps	3,483	(8,547)	3,398	(13,142)
Futures	415	-	63	(1,409)
Options	29,029	(75)	17,025	-
Total	93,287	(18,102)	87,470	(53,642)

10. Bonds

The fair value of investments in bonds, 981,510 kCHF as at 31 December 2021 (977,784 kCHF as at 31 December 2020) is as follows:

(in kCHF)	2021	2020
North America	422,603	273,674
Europe, Middle East and Africa	402,735	535,253
Asia	101,165	89,162
Emerging Markets	55,007	79,695
Total	981,510	977,784

Source of geographical data: country of risk data provided by Custodian

The exposure of bonds to market and credit risk is described under note 4.1. “Financial Risk Factors”.

11. Equities

The fair value of investments in equities, 823,880 kCHF as at 31 December 2021 (1,054,074 kCHF as at 31 December 2020) is as follows:

(in kCHF)	2021	2020
Europe, Middle East and Africa	474,730	539,742
North America	336,262	495,687
Asia	10,709	13,534
Emerging Markets	2,179	5,111
Total	823,880	1,054,074

Source of geographical data: country of risk data provided by Custodian

The decrease in Equities during the year includes 107,995 kCHF in relation to an increase in market valuations (186,459 kCHF increase in 2020) and a decrease of 338,189 kCHF in respect of reduced allocation to equities (142,040 kCHF increased allocation in 2020).

The exposure of equities to market risk is described under note 4.1. “Financial Risk Factors”.

12. Investment Funds

The fair value of Investment Funds, 1,408,799 kCHF as at 31 December 2021 (1,332,949 kCHF as at 31 December 2020) is as follows:

(in kCHF)	2021	2020
Alternative funds	454,419	338,620
Equity funds	354,801	399,647
Private Equity	351,588	291,587
Fixed Income funds	120,291	194,992
Real Estate funds	71,545	67,372
Private Debt	56,155	40,731
Total	1,408,799	1,332,949

13. Investment Property

The fair value of Investment Property, 871,003 kCHF as at 31 December 2021 (800,503 kCHF as at 31 December 2020) is as follows:

(in kCHF)	2021	2020
As at 1 January	800,503	712,513
Purchases	17	13
Net gain/(loss) for fair value adjustments (price)	87,654	94,052
Net gain/(loss) for fair value adjustments (foreign exchange)	(17,171)	(6,075)
As at 31 December	871,003	800,503

During the year, there was one purchase of Investment Property in France representing three small parcels of forest land. (There was one purchase of a small parcel of forest land in France in 2020).

14. Sundry Creditors

Sundry creditors include rent guarantee deposits, rents received in advance, amounts due to members leaving the Fund and value added tax payable.

(in kCHF)	2021	2020
Members and Beneficiaries	5,208	6,840
Investment property deposits	1,849	1,745
Taxes payable	312	155
Investment property creditors	2,852	3,065
Deferred Income	520	460
Total	10,741	12,265

15. Other Payables

Other Payables include contributions to be reimbursed to members leaving the Fund and amounts due mainly in respect of management and custody fees.

(in kCHF)	2021	2020
Reimbursements of Contributions	1,312	1,783
Payments Outstanding	2,604	2,776
Total	3,916	4,559

16. Dividends

(in kCHF)	2021	2020
Investment Funds	70,451	30,927
Equities	13,192	11,671
Total	83,643	42,598

Included under the heading Investment Funds are dividends totalling 65,114 kCHF (25,105 kCHF as at 31 December 2020) received from Private Equity investments. The increase during the year was a result of the strong performance, compared to the prior period.

17. Interest Income

(in kCHF)	2021	2020
Cash and Cash Equivalents	136	402
Bonds	20,651	13,045
Total	20,787	13,447

Included in Interest Income under the heading “Bonds” is an amount of 7,534 kCHF (514kCHF as at 31 December 2020) that relates to cost adjustments for inflation-linked bonds. The increase during the year was largely as a result of higher inflation in the United States, compared to the prior period.

18. Unrealised Gains/(Losses) on Financial Assets at Fair Value through Profit & Loss

The following table shows the amount of unrealised gains/(losses) on financial assets at fair value through profit and loss and discloses the gains and losses arising as a result of changes in price and changes in foreign exchange currency movements for the money market funds included within Cash and Cash Equivalents, Bonds, Equities, Investment Funds and Derivatives. The Fund hedges the foreign exchange exposure it has to assets denominated in non-Swiss franc currencies.

The unrealised gains/(losses) arising as a result of changes in price and changes in foreign exchange currency movements on derivative products are on a best estimate basis.

			2021			2020
(in kCHF)	Price	Currency	Total	Price	Currency	Total
Cash and Cash Equivalents	(238)	(6,009)	(6,247)	-	-	-
Bonds	(26,819)	(11,598)	(38,417)	51,990	(28,942)	23,048
Equities	55,722	(8,980)	46,742	206,006	(23,689)	182,317
Investment Funds	146,759	10,661	157,420	124,917	(80,509)	44,408
Derivatives	(1,819)	31	(1,788)	(10,293)	(292)	(10,585)
Total	173,605	(15,895)	157,710	372,620	(133,432)	239,188

19. Realised Gains/(Losses) on Financial Assets at Fair Value through Profit & Loss

The following table shows the amount of realised gains/(losses) on financial assets at fair value through profit and loss and discloses the gains and losses arising as a result of changes in price and changes in foreign exchange currency movements for Bonds, Equities, Investment Funds and Derivatives. The Fund hedges the foreign exchange exposure it has to assets denominated in non-Swiss franc currencies.

			2021			2020
(in kCHF)	Price	Currency	Total	Price	Currency	Total
Cash and Cash Equivalents	-	15	15	(319)	(775)	(1,094)
Bonds	2,176	(9,135)	(6,959)	16,838	(9,174)	7,664
Equities	49,322	11,931	61,253	17,582	(13,440)	4,142
Investment Funds	18,526	4,060	22,586	7,847	(6,648)	1,199
Derivatives	(38,876)	(178)	(39,054)	(107,836)	(1,209)	(109,045)
Total	31,148	6,693	37,841	(65,888)	(31,246)	(97,134)

The realised gains/(losses) arising as a result of changes in price and changes in foreign exchange currency movements on derivative products are on a best estimate basis.

20. Investment Property Income

The following table shows Investment Property Income arising from both rental income and non-rental income:

(in kCHF)	2021	2020
Rental Income:		
Residential Property	12,581	12,405
Commercial Property	10,686	11,171
Non-Rental Income:		
Forests	817	384
Changes in fair value	70,483	87,978
Total	94,567	111,938

Gains of 87,654 kCHF for fair value price adjustments and losses of 17,171 kCHF for fair value adjustments as a result of foreign exchange movements, are included in "Changes in fair value" above. The corresponding amounts in 2020 were gains of 94,052 kCHF and losses of 6,075 kCHF respectively.

With regard to its Investment Property the Fund is a lessor of operating leases and as such is required to make the following disclosures in respect of future minimum lease payments.

(in kCHF)	2021	2020
Not later than 1 year	22,093	20,835
Between 1 and 5 years	68,022	66,666
Later than 5 years	13,993	14,777
Total	104,108	102,278

The Fund has leases that are contracted for remaining periods of between one and ten years. Some of the operating leases include break clauses.

21. Foreign Exchange Gains/(Losses)

Foreign Exchange Gains/(Losses) includes losses of 12,209 kCHF (gains of 149,434 kCHF in 2020) relating to trades executed as part of the Currency Overlay programme that is used by the Fund to hedge its foreign exchange rate risk.

(in kCHF)	2021	2020
Currency Overlay programme	(12,209)	149,434
Other exchange rate movements	764	(9,754)
Total	(11,445)	139,680

22. Investment Management Fees

22.1. Recorded Investment Management Fees

The following table shows Investment Management Fees recognised in the Statement of Financial Performance.

(in kCHF)	2021	2020
Reported Investment Management Fees	44,224	36,270
Calculated Investment Management Fees	1,072	1,226
Total	45,296	37,496

The above Recorded Investment Management fees also include performance fees. The increase in the amount of Reported Investment Management Fees of 44,224 kCHF in 2021 (36,270 kCHF in 2020) was largely due to an increase in the performance of Investment Funds during the year.

22.2. Non-recorded Investment Management Fees

For less than 4% of Total Financial assets (less than 3% in 2020) there was insufficient information available regarding Investment Management Fees. As a result no Investment Management Fees have been disclosed for these assets that are all Private Equity/Debt funds. The total carrying value of these assets as at 31 December 2021 was 191,812 kCHF (135,928 kCHF as at 31 December 2020).

Carried interest payable in the future to the general partners of Private Equity funds has not been disclosed as there was insufficient information available.

23. Investment Property Expenditure

(in kCHF)	2021	2020
Residential Property	8,477	5,920
Commercial Property	3,444	1,322
Forests	207	163
Total	12,128	7,405

The above Investment Property Expenditure includes amounts totalling 4,660 kCHF due to renovation work on Residential and Commercial Property (776 kCHF as at 31 December 2020).

24. Other Financial Expenses

Other Financial Expenses were 4,151 kCHF for the period ending 31 December 2021 (2,854 kCHF in 2020). During the year the Fund was exposed to negative interest rates in some currencies, notably Swiss Franc and Euro rates, in its current cash accounts. The increase in Other Financial Expenses during the year was largely as a result of the increase in the Cash and Cash Equivalents compared to the prior year.

25. Administration Costs

Administration costs of 5,793 kCHF in the period ending 31 December 2021 (5,567 kCHF for the period ending 31 December 2020) were as follows:

(in kCHF)	2021	2020
Personnel Costs	4,490	4,297
Operating Expenses	1,141	1,104
Supplies	33	32
Audit/Valuation costs relating to Investment Property	129	134
Total	5,793	5,567

26. Membership Activities

This heading shows the contributions of the members of the Fund and the participating Organisations and other amounts received, as well as the various benefits and other amounts paid during the period.

27. Compensations

The Fund is compensated by CERN for the additional cost associated with Administrative Circular No. 22 A (Rev.1) “Award of additional periods of membership in the Pension Fund for long-term shift work”. Compensations received for the period ending 31 December 2021 were 474 kCHF and are included in the total amount of 652 kCHF. There were no such compensations received for the period ending 31 December 2020.

28. Procurement of entitlements to pension for surviving spouse’s paid by members

Following an amendment to the Fund’s Rules, effective 1 January 2021, an introductory measure allowed beneficiaries who married after retirement, and since 2006, to submit a request to procure an entitlement to all or part of a surviving spouse’s pension where no entitlement to a surviving spouse’s pension from the Fund existed or had been procured. The increase in amounts under the heading “Procurement of entitlements to pension for surviving spouse’s paid by members” was largely due to these introductory measures under which an additional seven beneficiaries procured the entitlement. As at 31 December 2021, a total of eleven beneficiaries have procured the entitlement to a surviving spouse’s pension (four as at 31 December 2020).

29. Transfer values paid to members

According to Article II 1.11 of the Fund's Rules, members with less than ten years of service may, under certain circumstances, receive a transfer value directly into their bank account. Alternatively, members can select to have the transfer value paid to another pension scheme. An amount of 1,281 kCHF as at 31 December 2020, previously classified as "Transfer values paid to members" has been re-classified as "Transfer values paid to other schemes". An amount of 663 kCHF as at 31 December 2020, previously classified as "Transfer values paid to members" has been re-classified as "Amounts pending selection from members". Neither of these re-classifications affect the Total Benefits and Payments as at 31 December 2020.

30. Transfer values paid to other schemes

Upon leaving the Fund, members can choose to have a transfer value paid into another pension scheme. An amount of 1,281 kCHF as at 31 December 2020, previously classified as "Transfer values paid to members" has been re-classified as "Transfer values paid to other schemes". This re-classifications does not affect the Total Benefits and Payments as at 31 December 2020.

31. Amounts pending selection from members

Members who are entitled to a transfer value have one year to inform the Fund of their selection (Article II 1.11). Depending on the number of years of service, a member may elect to be paid a transfer value to another scheme or to the member. A member with at least five years of service may also elect to become a deferred beneficiary.

An amount of 663 kCHF, previously classified as "Transfer values paid to members", as at 31 December 2020, has been re-classified as "Amounts pending selection from members". This re-classification does not affect the Total Benefits and Payments as at 31 December 2020.

32. Litigations and Claims

As at 31 December 2021, there was one claim against CERN pending before the ILOAT (International Labour Organization Administrative Tribunal), which stemmed from a claim against the Fund. The complaint relates to the procurement of an entitlement to a surviving spouse's pension. Nothing is recognised in the Financial Statements as, in the opinion of the Organization and the Fund, the legal position is well substantiated and documented. The judgment is expected in 2022.

33. Related-Party Transactions

Parties are considered to be related if one party has the ability to control the other party or exercise significant influence over the other party in making financial or operational decisions.

Related parties of the Fund during the period were:

I. Professional members appointed by the CERN Council to act as experts in the PFGB and professional members appointed by the PFGB to the IC and ATC. These professional members provide advice on governance, investment and actuarial issues respectively. Fees in 2021 totalled 74 kCHF (108 kCHF in 2020);

II. Key personnel are the Chair of the PFGB, Chair of the IC, Chair of the ATC and the Chief Executive Officer of the Fund. The aggregate remuneration paid to the remaining key personnel includes salaries, allowances and other entitlements paid in accordance with the Staff Rules and Regulations;

III. CERN, the Organization, contributes a significant portion of the Fund's financing. While the Fund is an autonomous operating entity without separate legal identity, for the purposes of IPSAS 20 disclosure requirements, CERN is considered a related party. Although the Fund meets the cost of its operating expenses, CERN provides free of charge some central support services and office accommodation.

During the year the Fund paid the following amounts to CERN:

- Finance and Administrative Processes department: 357 kCHF for IT support and maintenance (192 kCHF in 2020).
- Industry, Procurement and Knowledge Transfer department: 43 kCHF for procurement services (43 kCHF in 2020).
- Internal Audit Service: 117 kCHF for internal audit services (111 kCHF in 2020).
- Legal Service: 109 kCHF (116 kCHF in 2020).

In 2021 the Fund did not grant any loan or pay any other remuneration (except for the above mentioned amounts) to the key management personnel or to their close family members.

34. Events after the Reporting Date

Since late February military action taking place in Ukraine has resulted in volatility in the financial markets and a series of sanctions by many European countries against certain Russian individuals, companies and banks. The Fund has conducted a risk assessment in relation to any potential impact on its ability to pay benefits and the investment portfolio. The current risk is assessed as low and will continue to be monitored as part of the Fund's normal risk management framework.

This is considered to be a non-adjusting event after the reporting date.

VI. Extract of Actuary's Report on the Fund as at 31 December 2021

The Actuary to the Fund has provided technical assessments of the Fund in line with the requirements of IAS26 using two separate sets of assumptions as set out below. The first set of assumptions are those assumptions used to measure the liabilities for inclusion in the Statement of Financial Position (IAS26). The second set reflects assumptions as set out in the report 'Actuary's Report on the Fund as at 31 December 2021' dated March 2022 (Best Estimate).

The technical assessments were based on member and asset data provided by the Fund.

1. Actuarial assumptions

<table>
<tr><th>Actuarial assumptions</th><th>IAS26
31 December 2021</th><th>IAS26
31 December 2020</th><th>Best Estimate
31 December 2021</th><th>Best Estimate
31 December 2020</th></tr>
<tr><th>Financial assumptions</th><th>% p.a.</th><th>% p.a.</th><th>% p.a.</th><th>% p.a.</th></tr>
<tr><td>Discount rate</td><td>0.15</td><td>0.02</td><td>3.7</td><td>1.50 (until 2021)
2.50 (2022 – 2026)
4.50 (2027 – 2031)
5.70 (2032 onwards)</td></tr>
<tr><td>Indexation of pensions linked to inflation</td><td>1.10</td><td>1.23</td><td>1.1</td><td rowspan="2">0.70 (until 2021)
0.90 (2022 – 2026)
1.00 (2027 – 2031)
1.40 (2032 onwards)</td></tr>
<tr><td>Inflation and remuneration increase linked to inflation</td><td>1.10</td><td>1.23</td><td>1.1</td></tr>
<tr><td>Average remuneration increase linked to career change (age related scale used)</td><td>Overall: 1.55
CERN Fellow: nil
CERN Non-Fellow: 1.50
ESO Fellow: 2.00
ESO Non-Fellow: 2.00</td><td>1.40</td><td>Overall: 1.55
CERN Fellow: nil
CERN Non-Fellow: 1.50
ESO Fellow: 2.00
ESO Non-Fellow: 2.00</td><td>1.40</td></tr>
</table>

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Demographic assumptions	**IAS26 31 December 2021**	**IAS26 31 December 2020**	**Best Estimate 31 December 2021**	**Best Estimate 31 December 2020**
Mortality	94% ICSLT2018	77% ICSLT2013	94% ICSLT2018	77% ICSLT2013
Spouses' age gap	Males are assumed to be 3 years older than their female spouses and vice versa			
Exit assumptions*	CERN Fellow: nil CERN Under age 40: 2.6% p.a. CERN Ages 40 and over: 0.5% p.a. ESO Under age 40: 0.4% p.a. ESO Ages 40 and over: 0.6% p.a.	Under age 40: 2.3% p.a. Ages 40 and over: 0.8% p.a.	CERN Fellow: nil CERN Under age 40: 2.6% p.a. CERN Ages 40 and over: 0.5% p.a. ESO Under age 40: 0.4% p.a. ESO Ages 40 and over: 0.6% p.a.	Under age 40: 2.3% p.a. Ages 40 and over: 0.8% p.a.
Method of evaluating benefits on exit	23% Transfer Value / 77% present value of accrued deferred pension (on average)	18% Transfer Value / 82% present value of accrued deferred pension (on average)	23% Transfer Value / 77% present value of accrued deferred pension (on average)	18% Transfer Value / 82% present value of accrued deferred pension (on average)

* *The proportion of members who fully extinguish their liability by payment of a transfer value compared to those who take a deferred pension when they depart the Fund with at least five years' service*

Some narrative has been provided below on the key actuarial assumptions to the IAS 26 assumptions.

Discount rate

IAS26 measures pension fund liabilities by reference to a discount rate which reflects the time value of money of an appropriate duration and currency. An entity should make a judgment whether the discount rate that reflects the time value of money is best approximated by reference to market yields at the reporting date on government bonds, high quality corporate bonds, or by another financial instrument. In some jurisdictions, market yields at the reporting date on government bonds will provide the best approximation of the time value of money. However, there may be jurisdictions in which this is not the case, for example, jurisdictions where there is no deep market in government bonds, or in which market yields at the reporting date on government bonds do not reflect the time value of money. The currency and term of the financial instrument selected to reflect the time value of money should be consistent with the currency and estimated term of the post-employment benefit obligations.

For the 31 December 2021 disclosures, the discount rate is the Aon Swiss AA corporate bond yield curve as received by email from CERN on 4 January 2022. This results in a discount rate assumption of 0.15% p.a. when expressed as a single equivalent rate. The full discount rate curve has been used for the purposes of the calculation.

This approach is consistent with that adopted for the 31 December 2020 disclosures.

Inflation-related assumptions

IAS26 does not state any method for determining the rate of inflation or of pension indexation to be assumed. Consequently, the rate of inflation, on which indexation of benefits provided by the Fund and also remuneration increases are dependant, has been set by the principles of best estimate and also of mutual compatibility with other assumptions. The assumption adopted is a long-term assumption appropriate over the entire remaining lifetime of existing members and beneficiaries of the Fund in relation to their accrued benefits as at 31 December 2021.

For the 31 December 2021 disclosure CERN have set their assumption to be consistent with the best estimate of future inflation suggested by the Fund’s risk consultant, Ortec Finance, for the 1 January 2022 Periodic Actuarial Review. This results in an inflation assumption of 1.10% p.a. at all terms at 31 December 2021.

The inflation assumption adopted for the 31 December 2020 disclosures (based on the assumption used from the 1 January 2019 Periodic Actuarial Review) was: 0.7% p.a. until 2021, 0.9% p.a. from 2022 to 2026, 1.0% p.a. from 2027 to 2031 and 1.4% p.a. from 2032. This resulted in a best estimate inflation assumption of 1.23% p.a. at 31 December 2020, when expressed as a 30-year spot rate (the full term dependent assumption was used for the purposes of the 31 December 2020 calculation).

Remuneration increase linked to career change

This assumption is in respect of increases to remuneration that are in excess of inflation and are due to career progression, promotional increase or some other mechanism.

The 31 December 2021 assumption has been set as nil for CERN Fellows, 1.50% p.a. (on average) for CERN non-Fellows, 2.00% p.a. for ESO Fellows and 2.00% p.a. (on average) for ESO non-Fellows. The assumption has been updated from the assumption used at 31 December 2020 and is in line with the best estimate assumption proposed for the 1 January 2022 Periodic Actuarial Review.

The average assumptions (shown for disclosure purposes only) has been calculated as a liability-weighted average. The full age-dependent assumption is used for the purposes of the calculation and is as follows:

Fellows	CERN	ESO
Average increase	nil	2.0% p.a.
Non-Fellows		
Average increase over all ages	1.5% p.a.	2.0% p.a.
Under age 40	1.8% p.a.	2.1% p.a.
Ages 40-50	1.6% p.a.	2.1% p.a.
Ages 50 and over	1.2% p.a.	1.6% p.a.

Mortality

The 31 December 2021 mortality assumption has been updated from the assumption used for the 31 December 2020 disclosures and is in line with the best estimate assumption proposed for the 1 January 2022 Periodic Actuarial Review. The ICSLT2018 table is based on mortality data from European-based International Civil Servants and allows for future improvements. Based on the Fund's past experience and using individual pension amount as a weighting factor to derive the best-fit scaling factor, an adjustment of 94% is applied to the probabilities contained within the ICSLT2018 tables.

The assumption used at 31 December 2020 was 77% of the ICSLT2013 table.

Other demographic assumptions

The method of evaluating benefits for active members who leave service has been updated from that used as at 31 December 2020 to be in line with the best estimate assumptions proposed for the 1 January 2022 Periodic Actuarial Review. It reflects a best estimate analysis of the proportion of members who fully extinguish their liability by payment of a transfer value compared to those who take a deferred pension when they depart the Fund with at least five years' service. The assumption is an age-related scale, with an average assumption that allows for 23% of the corresponding transfer value and 77% of the present value of the accrued deferred pension.

In accordance with the Fund rules we have allowed for 100% of the transfer value for members who are assumed to leave the Fund with less than five years' service.

The assumptions for spouses' age gap and retirement age are in line with those proposed for the 1 January 2022 Periodic Actuarial Review and are unchanged from the corresponding assumptions at 31 December 2020.

The assumptions for proportion married, withdrawal rates, ill health disability rates and contract transitions have been updated in line with the best estimate assumptions proposed for the 1 January 2022 Periodic Actuarial Review.

2. Technical Balance Sheet using IAS26 Assumptions

Balance sheet	31 December 2021 IAS26 000's CHF	31 December 2021 with 2020 IAS26 assumptions 000's CHF	31 December 2020 IAS26 000's CHF
Total assets of the Fund	4,981,661	4,981,661	4,742,928
Liabilities in respect of members	*(6,744,359)*	*(7,046,629)*	*(7,102,752)*
Liabilities in respect of beneficiaries	*(5,623,996)*	*(5,734,030)*	*(5,763,107)*
Total Liabilities	(12,368,355)	(12,780,659)	(12,865,859)
Surplus/(Deficit) in the Fund	**(7,386,694)**	**(7,798,998)**	**(8,122,931)**
Funding Level under IAS26 (%)	**40.3**	**39.0**	**36.9**

The funding level has increased from 36.9% as at 31 December 2020 to 40.3% as at 31 December 2021.

The main factors contributing to this change were as follows:

1. Normal contributions paid into the Fund were 257.9 million CHF lower than the value of benefits (assessed on the IAS26 assumptions) earned during the year.
2. Special contributions of 61.4 million CHF were paid into the Fund over the year, which increased the assets of the Fund.
3. The Fund's liabilities accrued interest of 2.5 million CHF.
4. The Fund assets achieved a return of 309.7 million CHF.
5. The assumptions used to measure the liabilities have changed, which has resulted in a 412.3 million CHF reduction in the liabilities.
6. There has been an experience gain of 213.2 million CHF arising on the Fund's liabilities.

Overall, these factors have combined to decrease the deficit by 736.2 million CHF over the year.

The table below summarises the impact on the accounting liability at 31 December 2021 of changing key assumptions from the assumptions used at 31 December 2020. Each change is considered in isolation.

Assumption	31 December 2021	31 December 2020	(Increase)/decrease to the liability at 31 December 2021 000's CHF
Discount rate	0.15% p.a.	0.02% p.a.	350,107
Indexation of pensions and remuneration increase linked to inflation	1.10% p.a.	1.23% p.a.	308,192
Remuneration increases linked to career change	CERN Fellow: nil CERN Non-Fellow: 1.50% p.a. ESO Fellow: 2.00% p.a. ESO Non-Fellow: 2.00% p.a.	1.40% p.a.	33,088
Mortality	94% ICSLT2018 (Generational)	77% ICSLT2013 (Generational)	(101,910)

Assumption	31 December 2021	31 December 2020	(Increase)/decrease to the liability at 31 December 2021 000's CHF
Ill health decrement	Age related table based on a Fund experience study performed in 2021	60% of the underlying rates contained in the VZ2010 standard tables	63,232
Exit assumptions	CERN Fellow: nil CERN Under age 40: 2.6% p.a. CERN Ages 40 and over: 0.5% p.a. ESO Under age 40: 0.4% p.a. ESO Ages 40 and over: 0.6% p.a.	Under age 40: 2.3% p.a. Ages 40 and over: 0.8% p.a.	(51,047)
Proportions married	Age and gender dependent age differences contained in the VZ2010 standard tables increased by 5.0% on average	Age and gender dependent age differences contained in the VZ2010 standard tables increased by 3.8% on average	(39,975)
Method of evaluating benefits in case of exit	23% Transfer Value / 77% present value of accrued deferred pension, on average, based on an age-related scale	18% Transfer Value / 82% present value of accrued deferred pension, on average, based on an age-related scale	20,921
Residual change in assumptions (combining the individual impacts outlined above and changes in HR contract and projection information)	Contract transition assumptions based on information from CERN and ESO HR for 1 January 2022 Periodic Actuarial Review	Contract transition assumptions based on information from CERN and ESO HR for 1 January 2019 Periodic Actuarial Review	(170,304)

The table below shows the impact on the IAS26 liability results at 31 December 2021 (with a starting position of 12,368,355 k CHF) to changes in the discount rate, inflation and remuneration increase assumptions. Please note that for the purpose of these sensitivities, all assumptions are changed in isolation while keeping the other assumptions constant.

Assumption changed*	Gain/(loss) on liabilities resulting from a 0.5% increase in the assumption 000's CHF	Gain/(loss) on liabilities resulting from a 0.5% decrease in the assumption 000's CHF
Discount rate	1,272,837	(1,503,810)
Inflation (including impact on indexation of pensions and remuneration)	(1,351,181)	1,085,518
Remuneration linked to career change	(414,562)	382,362

**Please note that the changes in the liabilities resulting from the increase/decrease to the individual assumptions shown in the table above are slightly asymmetric around the base value of the liabilities of 12,368,355 k CHF. The asymmetry occurs as a result of compounding the inflation related assumptions and the discount rate assumption as part of the present value liability calculation. In this instance, the asymmetry is more significant than might be expected owing to a fairly low discount rate.*

3. Technical Balance Sheet using Best Estimate assumptions

Balance sheet	**31 December 2021 000's CHF**	**31 December 2020 000's CHF**
Total assets of the Fund	4,981,661	4,742,928
Liabilities in respect of members	*(2,668,200)*	*(2,163,066)*
Liabilities in respect of beneficiaries	*(3,796,208)*	*(3,782,592)*
Total Liabilities	(6,464,408)	(5,945,658)
Surplus/(Deficit) in the Fund	**(1,482,747)**	**(1,202,730)**
Funding Level using Best Estimate assumptions (%)	**77.1**	**79.8**

The funding level has decreased from 79.8% as at 31 December 2020 to 77.1% as at 31 December 2021.

This decrease was largely because of the update to the discount rate and inflation rate assumptions to reflect the current best estimate of the Fund's risk consultant, Ortec Finance, as proposed for the 1 January 2022 Periodic Actuarial Review. This was partly offset by returns on assets over the year being higher than assumed.

The table below shows the impact on the Best Estimate liability results at 31 December 2021 (with a starting position of 6,464,408 k CHF) to changes in the discount rate, inflation and remuneration increase assumptions. Please note that for the purpose of these sensitivities, all assumptions are changed in isolation while keeping the other assumptions constant.

Assumption changed*	**Gain/(loss) on liabilities resulting from a 0.5% increase in the assumption 000's CHF**	**Gain/(loss) on liabilities resulting from a 0.5% decrease in the assumption 000's CHF**
Discount rate	455,611	(520,293)
Inflation (including impact on indexation of pensions and remuneration and the discount rate)	41,479	(87,469)
Remuneration linked to career change	(133,627)	121,690

The inflation sensitivity has a relatively small impact on the liabilities as the increases/decreases to liabilities linked to a rise/fall in indexation of pensions and remuneration are largely offset by increases/decreases in the discount rate assumption (set as inflation +2.6% p.a.) which decreases/increases the liability value.

**Please note that the changes in the liabilities resulting from the increase/decrease to the individual assumptions shown in the table above are slightly asymmetric around the base value of the liabilities of 6,464,408 k CHF. The asymmetry occurs as a result of compounding the inflation related assumptions and the discount rate assumption as part of the present value liability calculation.*

CERN