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PENSION FUND

Annual Report and Financial Statements for the year ended 31 December 2018

Audited by representatives of the
NATIONAL AUDIT OFFICE OF FINLAND

Action to be taken		Voting Procedure
For recommendation	**FINANCE COMMITTEE** 368th Meeting 18 and 19 June 2019	Simple majority of Member States represented and voting and 51% of the contributions of all Member States
For approval	**COUNCIL** 193rd Session 20 and 21 June 2019	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 2018 and to grant discharge to the Chief Executive Officer.

PENSION FUND

Annual Report

and Financial Statements

for the year ended 31 December 2018

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 Letter

As Chair of the CERN 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 2018. I trust that this report will give you an informative update on the financial status of the Fund, as well as a summary of the investment strategy and performance over the last year.

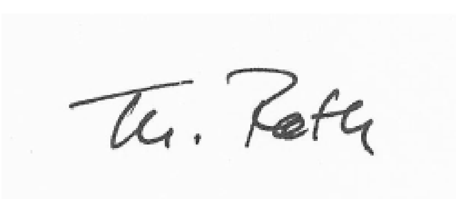
In what was a challenging year in financial markets, it was encouraging to see the Fund's investment return remain positive in 2018. More details of the investment activities are included in the Investment Report in section 5 of this report.

I am pleased to report that the Working Group on the Governance of the CERN Pension Fund completed its work during the year and presented a report to the Council during its June session. The Council approved the proposed amendments to Chapter I of the Fund's Rules and these took effect from 14 June 2018. The amendments to Chapter I included, inter alia, a clearer separation between the supervisory and executive responsibilities of the relevant bodies of the Pension Fund and an amendment to the audit structure of the Fund with the CERN Internal Audit Service taking full responsibility for all internal audit matters.

Other important changes during the year were the successful transfer of the Fund's assets to the new Global Custodian in the third quarter and the rotation of the Fund's External Auditors, with the National Audit Office of Finland (NAOF) replacing the Supreme Audit Office of Poland (NIK). I would like to take this opportunity to express my appreciation to the previous External Auditors for their positive collaboration over the last five years.

At the beginning of May Isabelle Mardirossian joined the PFGB after being appointed by the CERN Staff Association to replace Alessandro Raimondo who served the Fund with dedication for 6 years as a member of the PFGB and 5 years as a member of the Investment Committee (IC). The Council appointed Peter Hristov as Vice-Chair of the PFGB for three years. During its April meeting the PFGB appointed Martin Steinacher as Chair of the IC and Marcus Klug and Isabelle Mardirossian as members of the IC.

In closing, I would like to warmly thank the Pension Fund Management Unit's staff for their contribution this year, as well as all the members of the Governing Board and committees for their continued service and dedication.



Thomas Roth,
Chair, Pension Fund Governing Board

ANNUAL REPORT

I. Pension Fund Governing Board Report

The PFGB hereby presents its Annual Report and Financial Statements for the year ended 31 December 2018.

A description of the Fund and its governance structure can be found in Note 1 “General Information” of the Financial Statements.

1. Composition of the bodies of the Fund and Advisers (2018)

Governing Board

Members	Appointed by:
Thomas Roth, Chair Véronique Halloin	CERN Council
Marcus Klug	ESO Council
Martin Steinacher	Ex-officio (in capacity as member of CERN Management responsible for Administration)
Alessandro Raimondo, Vice-Chair (until 30.04.2018) Peter Hristov, Vice-Chair (as of 01.05.2018) Isabelle Mardirossian (as of 01.05.2018)	CERN Staff Association
Andreas Glindemann	ESO Staff Association
Michel Baboulaz	CERN and ESO Pensioners Association
John Breckenridge Adrian Cunningham	Professional members appointed by CERN Council

Investment Committee

Members
Alessandro Raimondo, Chair (until 30.04.2018)
Jayne Atkinson
Jacob Bjorheim
Martin Steinacher (Chair, as of 01.05.2018)
Matthew Eyton-Jones (Ex-officio until 14.06.2018) [1]
Isabelle Mardirossian (as of 01.05.2018)
Marcus Klug (as of 01.05.2018)

Actuarial and Technical Committee

Members
Adrian Cunningham, Chair
Michel Baboulaz
Marcus Klug
Matthew Eyton-Jones (Ex-officio until 14.06.2018) [1]

Chief Executive Officer

Matthew Eyton-Jones

Auditors

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

[1] *Following changes to Chapter I of the Fund's Rules, effective 14 June 2018*

Advisers

Fund Actuary

Buck Consultants Limited, *London, UK*

Custodian

Northern Trust Global Services Limited, *London, UK*

Risk Consultant

ORTEC Finance AG, *Pfäffikon, Switzerland*

CERN Consulting Medical Practitioner

Jean-Pierre Lalain, *Geneva, Switzerland*

A detailed list of the Fund’s Advisers is included as an annex to this report.

2. Overview of the year 2018

Pension Fund Governing Board

The PFGB met five times during the year (2017: six times). There was a 94% attendance record by the members of the PFGB.

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, the approval of the Fund's risk limit, the review of the Fund's actuarial "dashboard", as presented by the Fund's Actuary, the approval of the Fund's budget for administrative expenses and medium-term plan, and an update on the Fund's Internal Control System.

Chapter I of the Fund's Rules was updated, effective 14 June, following the Council's approval of the proposed changes from the report by the Working Group on the Governance of the CERN Pension Fund. The PFGB also approved updates of its own Rules of Procedures and those of its committees.

The audit structure of the Fund was amended as part of the above-mentioned review of the Fund's governance, with the CERN Internal Audit Service taking on full responsibility for all internal audit matters. As a result of this change, the PFGB, together with the CERN Audit Committee, the CERN Internal Audit Service and the Director-General, reviewed and approved a new CERN Internal Audit Charter. The 2019-2022 programme of work for the internal audit of the Fund was also reviewed and approved by the PFGB and by the CERN Audit Committee.

The Fund's Risk Consultant performed a long-term asset study and the results were presented to the PFGB.

During the year, the PFGB approved the actuarial assumptions proposed by the Actuary for the periodic actuarial review as at 1 January 2019. The assumptions adopted were proposed by the Actuary following studies undertaken on the mortality, early retirement and dependants assumptions and taking account of input from the Fund's Risk Consultant.

The PFGB also received an update from the Pension Fund Management Unit (PFMU) on the progress made with respect to the Fund's new website, which is due to be launched during the first quarter of 2019.

Investment Committee

The Investment Committee (IC) held four meetings during the year (2017: five meetings), including a joint meeting with the PFGB.

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 set by the PFGB.

During the year the IC reviewed some of the existing external advisory services, such as the operational due diligence service for alternative investment funds.

In November the IC approved the Fund's Strategic Asset Allocation for 2019 and agreed on the proposal, submitted to the PFGB, to approve retaining the Fund's risk measure of 1 Year 5% CVaR at -8% for the coming year.

Actuarial and Technical Committee

The Actuarial and Technical Committee (ATC) met four times during the year (2017: three times).

A significant part of the work performed by the ATC during the year was the review of the best-estimate actuarial parameters proposed by the Fund's Actuary for the Periodic Actuarial Review as at 1 January 2019. The Actuary completed a review of the mortality tables available, as well as studies on early retirement experience and dependants. These studies provided important information that allowed the actuary to propose a set of best-estimate assumptions, which were reviewed by the ATC and recommended to the PFGB for approval at its meeting in November.

Following the completion of the work of the governance working group, the ATC reviewed a draft of the Fund's Statement of Funding Principles. This is expected to be finalised during the coming year.

During the year, the ATC agenda also included regular items such as the review of the Actuary's year-end report and semi-annual dashboard. The ATC also examined the annual report from the Fund's Medical Practitioner and a report from the PFMU on the annual life certificate exercise.

3. Members and beneficiaries

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

			2018			2017
	CERN	ESO	Total	CERN	ESO	Total
Members (pre 01.01.2012)	1,781	322	2,103	1,861	332	2,193
Members (post 01.01.2012)	1,725	163	1,888	1,579	144	1,723
Total Members	3,506	485	3,991	3,440	476	3,916
Deferred retirement pensions	192	52	244	173	51	224
Retirement pensions	2,442	99	2,541	2,460	95	2,555
Surviving spouse pensions	788	15	803	757	17	774
Orphan pensions	40	3	43	40	3	43
Disability and ex-gratia	24	7	31	29	6	35
Total Beneficiaries	3,486	176	3,662	3,459	172	3,631

The number of members as at 31 December 2018 was 3,991 (3,916 as at 31 December 2017), representing an increase of 1.9% compared to 31 December 2017.

The number of beneficiaries as at 31 December 2018, excluding participants in the Progressive Retirement Programme, was 3,662 (3,631 as at 31 December 2017), representing an increase of 0.9% compared to 31 December 2017.

There were 406 members who left the two Organisations (CERN and ESO) during the year 2018 (381 in 2017), 59 of which were retirements (40 in 2017):

				2018				2017
	Men	Women	Total	%	Men	Women	Total	%
Retirement	50	9	59	14%	33	7	40	10%
Deferred Pension	7	1	8	2%	14	5	19	5%
Disability	-	-	-	0%	1	-	1	0%
Transfer Value	244	91	335	83%	245	73	318	84%
Deaths	3	1	4	1%	2	1	3	1%
Total Departures	304	102	406	100%	295	86	381	100%

4. 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 2018 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 2016 – Best Estimate assumptions (PBO – Open Fund)

The key actuarial assumptions applied in the different liability measures are indicated in Table 2 below. The actuarial assumptions used for the Updated Funding Measure as at 31 December 2018 were the “Best Estimate” assumptions. These assumptions are those that will be used in the Periodic Actuarial Review as at 1 January 2019.

Actuarial Assumptions	Accounting Measure under IAS 26 PBO (Closed Fund) 31 December 2018	Updated Funding Measure Best Estimate PBO (Closed Fund) 31 December 2018	Periodic Actuarial Review Best Estimate PBO (Open Fund) 1st January 2016
Discount Rate	1.18%*	1.5%: 2018-2021 2.5%: 2022-2026 4.5%: 2027-2031 5.7%: 2032 onwards	4.0%: 2016-2019 4.5%: 2020-2024 5.0%: 2025 onwards
Remuneration increase linked to inflation	1.18%*	0.7%: 2018-2021 0.9%: 2022-2026 1.0%: 2027-2031 1.4%: 2032 onwards	1.0%: 2016-2024 1.5%: 2025 onwards
Indexation of pensions linked to inflation	1.18%*	0.7%: 2018-2021 0.9%: 2022-2026 1.0%: 2027-2031 1.4%: 2032 onwards	1.0%: 2016-2024 1.5%: 2025 onwards
Remuneration increase linked to career change	1.40%**	Fellows: 0.0% Non fellows: 2.0% to 1.2%. Linear reduction between age 18 to 66	Fellows: 0.0% Non fellows: 1.4% to 0.6%. Linear reduction between age 18 to 64
Mortality and disability tables	77% ICSLT2013***	77% ICSLT2013***	83% VZ 2010 GEN

Table 2

**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.*

*** The remuneration increase linked to career change is 1.4% p.a. when expressed as a liability-weighted average, however the underlying assumption is the best estimate assumption that will be used for the Periodic Actuarial Review as at 1 January 2019 i.e. 0% for Fellows and for non-Fellows a 2.0% to 1.2% linear reduction between ages 18 to 66.*

**** Following analysis of the Fund’s mortality experience, an adjustment of 77% to the probabilities contained within the ICSL2013 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. For further details regarding the discount rate applied under IAS 26 please refer to section VI. "Extract of Actuary's Report on the Fund as at 31 December 2018".

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 2018. 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 represents the long-term Swiss Confederation Bonds interest rate, with a floor of the expected future long-term inflation rate. 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 2018, if invested with minimal investment risk or in assets providing returns in line with inflation, would meet the liabilities at this date. It is important to note that the "risk free" 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 2016

As provided for under Article I 4.04 of the Fund's Rules and Regulations 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 2016.

With respect to this liability measurement the actuary projects the assets and liabilities to 1 January 2041 to determine the expected funding level in 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:

Liability Measure	Funding Position Accounting Measure under IAS 26 As at 31 December 2018 kCHF	Funding Position Updated Funding Measure As at 31 December 2018 kCHF	Funding Position Periodic Actuarial Review As at 1 January 2016 kCHF
Net assets of the Fund	4,203,334	4,203,334	4,092,809
Actuarial Liabilities	10,072,056	6,197,671	5,604,318
Surplus/(Deficit) in the Fund	(5,868,722)	(1,994,337)	(1,511,509)
Funding Ratio at date of measure	41.7%	67.8%	73.0%
Funding Ratio at 1 January 2041	N/A	N/A	113.6%

Table 3

There is no Funding Ratio at 1 January 2041 under the first two measurement approaches above as they are projected on a closed fund basis.

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 2019

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 2019.

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 22 November 2018 with an additional assumption approved at its meeting on 8 February 2019. These assumptions will be used in the Periodic Actuarial Review as at 1 January 2019.

5. Investment Report

Macroeconomic Highlights

In 2018, global economic growth slowed but there was a divergence between economic regions. While GDP growth in the United States was stronger than expected, accelerating to nearly 3%, that of the Eurozone and China was disappointing. After the best growth in a decade in 2017, European activity subsided in 2018. China also failed to maintain its positive momentum of 2017 and slowed to 6.6% in 2018, the slowest growth in several decades.

Despite the less dynamic global economy, the labour market tightened and unemployment declined to multi-year lows in most countries. However, inflationary pressures remained rather tame and even declined in the latter part of the year as oil prices dropped significantly. This resulted in consumer price inflation in the advanced economies falling to 1.6% year on year at the end of 2018, down from a high of 2.3% in July.

The divergence in growth between the major regions translated into different monetary policy dynamics. While in the US the Federal Reserve increased the federal funds rate by 1 percentage point to 2.5%, in the Eurozone the European Central Bank (ECB) kept the deposit rate unchanged at -0.4% and, in China, monetary policy was loosened, with reserve requirements for depository institutions cut by 2.5 percentage points.

In aggregate, however, the monetary policy of the advanced economies was less accommodative. Central bank balance sheets in developed markets were unchanged in 2018 and looked set to steadily decline in 2019 for the first time in a decade.

Political risks continued to make the headlines. Investors were concerned about the possibility of increased global trade tariffs, the impact of the exit of the United Kingdom from the Eurozone and the functioning of the US government.

The tighter aggregate monetary policy in the face of slowing growth and high political uncertainty probably contributed to the rise in the volatility of global equity and bond prices. The lower structural liquidity of the public financial markets also exacerbated this trend.

At the latter end of the year, financial conditions tightened markedly as equity markets declined, volatility picked up and the corporate cost of borrowing rose. With central bankers not visibly concerned about market volatility, equity prices declined significantly and the yield on long-term government interest rates fell to multi-year lows.

Although part of this decline may be reversed as central banks signal a possible easing of monetary policy, the risks remain high. The slowdown in the Eurozone and China is currently sharper than expected, and fiscal policy looks set to sustain the US economy to a smaller extent going forward.

Risk Management and Asset Allocation

The Fund's risk management and asset allocation policy is set out in the Statement of Investment Principles, which is approved by the PFGB. It is based on setting an annual Risk Limit and an annual Strategic Asset Allocation (SAA), and on managing the Current Asset Allocation (CAA) exposure 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 2018, this objective corresponded to a return of 3% above Geneva inflation. The PFGB set the same Risk Limit for 2018 as for 2017, namely a 5% Conditional Value-at-Risk (CVaR) limit of -8%.

The SAA for 2018, which was defined by the Portfolio Management Committee (PMC) in collaboration with the Risk Consultant (Ortec Finance) and subsequently endorsed by the Investment Committee, is shown in Table 1 below.

Asset	CAA as at 31-12-2018	SAA 2018	SAA 2017
Fixed Income	28.11%	34.50%	36.50%
Equities	11.11%	16.00%	15.00%
Real Estate	17.75%	20.00%	20.00%
Infrastructure	1.22%	3.00%	0.0%
Timber/Farmland	2.22%	3.50%	3.50%
Private Equity	8.22%	6.00%	5.00%
Hedge Funds	7.47%	5.00%	8.00%
Commodities/Gold	2.91%	4.00%	4.00%
Cash	11.98%	8.00%	8.00%

Table 1: CAA as at 31-12-2018, SAA 2018 and SAA 2017.

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

The 2018 SAA approved in November 2017 was above the risk limit from May to December 2018, ranging between 8.2% and 8.5%. This was due to major shifts in the macroeconomic indicators that impact the forward-looking scenarios used to evaluate the allocation risk. The PMC, in collaboration with the Risk Consultant, therefore modulated the Fund's allocation away from the SAA so as to keep it compliant with the risk limit. Throughout the year, the Fund's risk, as estimated by Ortec Finance using the disequilibrium scenarios, remained within the one-year 5% CVaR limit of -8%. 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. The amount of cash in the CAA was above the one in the SAA due to the sale of a large real estate property and some reduction of long / short equity exposure.

Portfolio Performance in 2018

In 2018 the Fund returned a performance of 1.31%[2] net of external management fees, as reported by the external performance monitoring service as at 31 December 2018. This performance is calculated using a time-weighted rate of return to eliminate the impact of external cash flows and the associated timings on return calculations.

Figure 1 shows the Fund's cumulative returns compared to the return objective since December 2011, as reported by the independent performance calculation service company. The Fund's cumulated returns since this date exceeded the objective by 12.09 percentage points as at 31 December 2018.

[2] *This figure includes the real estate re-valuations carried out between October 2017 and December 2017. The inclusion of the re-evaluations of the previous year was an operational constrain imposed by the previous custodian of the Fund. This long-standing problem has been solved in 2018 thanks to the change of custodian and the overhaul of the reporting infrastructure of the Fund, which now de-couples the custody and performance calculation roles. As a result, the real estate re-valuations carried out between October 2018 and December 2018 have this year been included in the 2018 performance.*

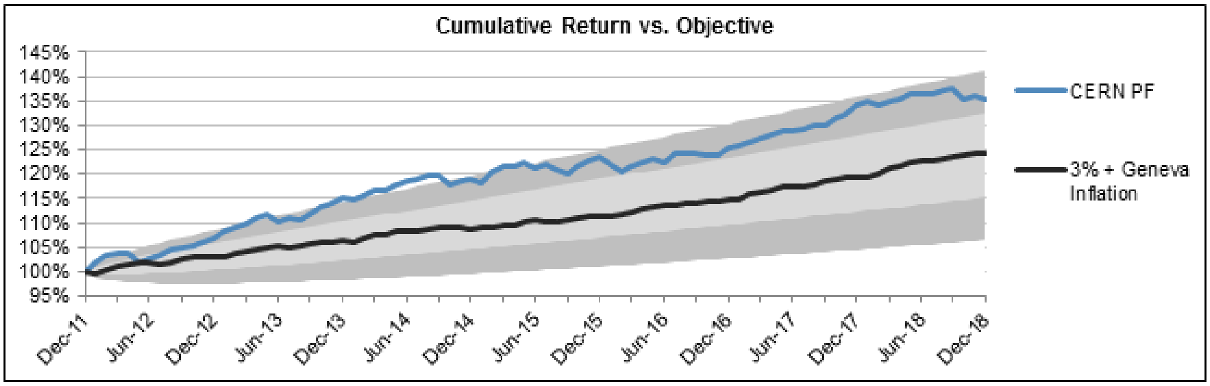


Figure 1: Cumulative Returns vs. Objective

Currency Hedging Policy

Throughout the year the Fund maintained a prudent currency hedging policy, hedging between 90% and 100% of its overall currency exposure on average.

Fixed Income

The year 2018 was challenging for the fixed income sector, largely due to the fact that the monetary policies of advanced economies were less accommodative.

Throughout the year the Fund's allocation to fixed income was kept below the allocation of the SAA. The credit exposure was reduced from approximately 10% at the end of 2017 to approximately 5% at the end of 2018, in anticipation of spread widening due to the less favourable economic indicators. Another consideration in favour of this reduction was the planned pullback of the Corporate Sector Purchase Programme (CSPP) by the ECB, which resulted in reduced liquidity and wider spreads. Furthermore, the Fund's exited from its direct exposure to loans (approx. 40 MCHF) by the middle of the year, which protected the Fund from the heavy sell-off later in the year.

In terms of interest rate sensitivity, the portfolio was overweight on the euro market and underweight on the US dollar market at the beginning of the year. US treasuries began the year with a yield of 2.4%, while German bunds were yielding 0.4%. The PMC correctly anticipated the risk of the upside in the US rates. In the second half of the year, when the market overshot the internally set red line of 3%, the PMC moved the overweight from the euro to the US dollar market. This strategy proved to be correct since, at the end of 2018, the German bund yields were barely changed at 0.2%, while the US treasury yields had fallen to 2.7%. At the end of the year, the portfolio's duration was overweight on the US dollar market (60%).

No changes were made in the private debt portfolio, except the redemption of funds invested in direct loan exposure, as noted above.

Equities

After a strong first three quarters, particularly in the US, there was a significant correction in the fourth quarter that hit all the markets and led to strongly negative returns for all geographical regions. With a return of -5.2%, the US S&P 500 index produced the best performance of the year despite suffering the most in the correction. The European equity large cap benchmark returned -10.9% in local currency, and the Japanese Topix index returned -16%. Small caps underperformed large caps in both the US and Europe. All the major actively managed portfolios outperformed, significantly enhancing the overall equity return, which stood at -5.8% after currency hedging costs of approximately 1.8%. The Fund's large allocation to the US Small Cap Growth manager, which outperformed the Russell 2000 Growth index by 34%, had an especially positive impact on the overall equity return.

The PMC was quite active in adjusting the equity allocation throughout the year, for a number reasons, often in order to maintain the Fund’s CVaR below the 8% limit, but also to meet the investment objectives. The year started poorly as a sharp spike in volatility in February coincided with a large drawdown in all equity markets. No major changes were made during the first quarter of the year, apart from a small increase in emerging market ETFs. In June, after a very strong run on the markets, the equivalent of 50 MCHF of the US Small Cap portfolio was liquidated in order to take some profit, bring the CVaR risk well below the limit and establish a buffer to help manage the risk. By the end of September, the US market had moved significantly higher compared with Europe, which had reached a peak in May and had trended sideways thereafter. In a defensive move, the Fund increased its exposure to the US healthcare sector whilst selling the equivalent amount of the S&P 500 ETF. Some other sectors, including Industrials, Consumer Staples and Financials, were neutralised to bring them closer to the benchmark weight. Protective puts on the S&P 500 were rolled in September so as to protect the equity allocation until the end of the year. The semi-conductor sector, which was a major overweight in some investors’ European portfolios, continued to weaken, driven by poor sentiment brought about by trade disagreements between the US and China, as well as a clear slowdown in the global smartphone market. This was a detractor from the performance of the Fund’s European equity portfolio.

By October, as pressures built on the market owing to concerns about trade and the Fed’s rate-hiking goals, equities started to weaken. Weaker earnings outlooks and talk of recession added to the worries, and a full market correction ensued. The PMC had already begun to protect the portfolio in early October. More put protection was added on the US markets, and Eurostoxx 50 puts and futures hedges were implemented to provide further protection. The team also took advantage of the elevated volatility in order to sell some S&P 500 puts, which were then realised for a profit soon after in November when the index recovered.

The actions that the PMC took in the early part of the quarter played a major role in protecting the Fund’s equity book, and the options overlay smoothed the performance further at the end of the year.

Real Assets: Real Estate - Timber - Farmland - Infrastructure

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

Real Estate

Directly owned properties

At the end of 2018, the real-estate portfolio comprised 13 directly owned properties: three residential buildings in Switzerland, and five residential or commercial buildings in France, two in Germany and three in the UK. The divestment of the St Honoré property in Paris was completed with an IRR of 18.8%.

Overall, the real-estate portfolio recorded an increase in capital value of 49 MCHF (7% above the December 2017 figure). The highest increases in capital value compared to December 2017 were recorded by the German and French properties (17% and 15.1% respectively). The UK properties, on the other hand, experienced an overall fall in capital value of - 4.8%.

The net rental yield, expressed in local currency, was 2.5% in Switzerland (compared to 2.8% in 2017), 2.8% in Germany (3.6% in 2017), 2.9% in France (2.4% in 2017) and 4.4% in ¨the UK (3.8% in 2017). In Switzerland and Germany the main driver of this yield compression was the capital increase of the properties. In the UK the yield increase was largely due to the reduction in the capital value following the political uncertainties resulting from the decision to leave the EU (“Brexit”). In France, the yield increase is explained, in particular, by the lower amount of work undertaken compared to 2017 (-1.2 MEUR).

The Fund remained conservative throughout the year in terms of reinvestments, mindful of the risks related to the normalisation of interest rates. The focus of the market search continued to be prime locations, in particular in Paris where, thanks to previous transactions, the Fund is able to leverage its knowledge of the local market. For further details on the directly owned properties please refer to the Annex.

Real-estate funds

In 2018, the Pension Fund committed 17 MEUR to Credit Suisse European Property II, a value-added pan European real-estate fund. As of December 2018, the Credit Suisse fund had called 5.7 MEUR and had five properties in its portfolio.

Timber

The TIR Europe Forestry Fund I, which focuses on timberland located in the south of the United States and in which the Pension Fund has committed 8 MUSD, is now fully invested.

The Pension Fund's real-assets portfolio includes four parcels of forest in France with a total area of 2,084 hectares, mainly dedicated to the growth of oak trees. As of December 2018, its value had increased by 3.9% compared to 2017 due to an increase in the prices of oak that was largely driven by Chinese demand. For further details on the forests please refer to the Annex.

Farmland

In May 2018, the "Babraham" farm in the UK was sold for 28.5 MGBP, representing a premium of more than 30% compared to the last valuation of 21.2 MGBP as of December 2017. The exit yield was 1.2%.

The Craigmore Dairy partnership, a dairy farmland fund in New Zealand, is fully drawn and almost fully invested (two thirds of the total partnership). The remaining capital is expected to be invested over two dairy farms. Both acquisitions are expected to be completed in June 2019.

Infrastructure

The infrastructure portfolio had a market value of approximately 52 MCHF at the end of the year, making up 1.2% of the Fund's total assets. It consisted of approximately 60% listed equities and 32% private investments, with the rest in cash. The two private investments were the 3i European Operational Project Fund, to which the Fund has committed 30 MEUR, and the JP Morgan Infrastructure Fund, which is an open ended evergreen fund investment dating back to 2007 and is now worth the equivalent of 14 MCHF. The 2018 return on the portfolio, hedged into Swiss francs, was -3.4%. This compared favourably to most infrastructure benchmarks, e.g. the iShares Global Infrastructure, which returned approximately -13.5% on a comparable basis.

Private Equity

Over the course of 2018, the Fund received 45.4 MCHF in distributions (compared to 22.5 MCHF in 2017) and paid out 41 MCHF in capital calls (50.7 MCHF in 2017). This led to a positive net cash flow of 4.5 MCHF. In addition, the Fund committed 11 MCHF over two small buyout funds that were focused, respectively, in the branded consumer goods and aerospace/power generation sectors. As of December 2018, the Fund had 78 active investments. The Fund's total exposure, in terms of strategy, was dominated by LBO (Leveraged Buyout) (47%), followed by growth equity (20%). The geographic exposure is shared fairly equally between Europe (41%) and North America (47%).

In November 2018, the contract with the private equity consultant ended. The consultant provided the services of sourcing prospective investments, active monitoring, reporting and collection of cash-flow and valuation data. To ensure continued reporting and data collection services, CERN has insourced these activities.

Hedge Funds

The hedge fund allocation remained constant in 2018, in line with the SAA. The portfolio remained stable with one new investment of 9 MUSD with QIM, an allocation to a short-term CTA and the total redemption of Systematica (6.5 MUSD).

Despite a difficult year for listed markets, the hedge fund portfolio returned a positive performance in Swiss francs. Both the core and the opportunistic allocations performed according to expectations throughout different volatility regimes.

Update on the Investment Framework

Following the change of the Fund's custodian, and in order to streamline operational activities, it was decided to reduce the number of accounts at the custodian to the operational minimum required while maintaining high granularity for risk and performance calculations. This set-up, which was approved by the PFGB achieved this through the use of an independent performance calculation service company which could map the level of granularity of reporting needed. The choice of de-coupling the custody and performance calculation functions, improved the robustness of the Fund operational infrastructure and aligned the infrastructure of the Fund with best practice.

Conclusions – Macro Outlook

In 2019, although growth remains positive and central bankers have signalled that monetary policy will be more supportive, the outlook remains relatively uncertain.

Looser financial conditions as equity markets rebound and interest rates decline, and expectations that some of the political risk might abate in the context of continued economic expansion, are positive for risky assets. However, as the economic cycle matures, there are uncertainties surrounding the magnitude of the economic slowdown and the extent to which political issues can be resolved. The investment outlook is therefore relatively positive on the whole but requires great caution as the risk of further market volatility remains high.

II. Annex

1. Advisers

Bankers

Banque Cantonale de Fribourg, *Fribourg, Switzerland*
Barclays Bank plc, *Cambridge, UK*
Caisse de Credit Mutuel, *Saint Genis Pouilly, France*
Credit Agricole Centre-Est, *Oyonnax, France*
Credit Suisse AG, *Zurich, Switzerland*
Deutsche Bank AG, *Berlin, Germany*
Mirabaud & Cie Banquiers Privés SA, *Geneva, Switzerland*
Post Finance SA, *Lausanne, Switzerland*
Société Générale SA, *Annemasse, France*
UBS SA, *Nyon, Switzerland*

Brokers and Derivatives Counterparties

Bank of America Merrill Lynch, *New York, USA*
Barclays Bank plc, *London, UK*
Bloomberg L.P., *New York, USA*
BNP Paribas SA, *Paris, France*
Carax SA, *Paris, France*
Citigroup Inc., *New York, USA*
Deutsche Bank AG, *Frankfurt, Germany*
Exane SA, *Paris, France*
Goldman Sachs Group, Inc., *New York, USA*
Helvea, *Geneva, Switzerland*
Jefferies, *London, UK*
J.P. Morgan Chase & Co., *London, UK*
Louis Capital Market, *London, UK*
Mirabaud Securities LLP, *London, UK*
Mizuho Intenational plc, *London, UK*
Morgan Stanley & Co. International plc, *London, UK*
Natixis, *Paris, France*

Brokers and Derivatives Counterparties (continued)

Rabobank, *Utrecht, Netherlands*
Santander Investment, *Santander, Spain*
Sociéte Générale SA, *Paris, France*
State Street Corporation, *Boston, USA*
Stifel Financial Corp., *Saint-Louis, Missouri, USA*
Tachibana Securities Co.Ltd, *Tokyo, Japan*
UBS Limited, *London, UK*
UniCredit SPA, *Munich, Germany*
Wells Fargo & Co, *London, UK*

Data Services

Apex Fund Services Ltd (previously Equinoxe AIS Ltd), *Dublin, Ireland*
Arcadis ESG, *Paris, France*
Bloomberg Finance L.P., New York, USA
Capital Economics Ltd, *London, UK*
Efront Financial Solutions Inc., *New York, USA*
Ethos Services SA, *Geneva, Switzerland*
FTSE International Ltd, *London, UK*
FX Connect & Trade Services LLC, *Frankfurt, Germany*
Haver Analytics, *New York, USA*
Hyperpyron International Partners Inc., *Celina, USA*
IPD Investment Property Databank GmbH, *Frankfurt, Germany*
Links Analytics B.V., *Delft, The Netherlands*
Mcube Investment Technologies LLC, *Plano, USA*
Morningstar Switzerland GmbH, *Zurich, Switzerland*
Ned Davis Research Inc., *Venice, USA*
Nerco Ingenierie SAS, *Lyon, France*
NYSE Market Inc., *Pittsburgh, USA*
Peracs GmbH, *Frankfurt, Germany*
Preqin Ltd, *London, UK*
S&P Dow Jones Indices LLC, *Chicago, USA*

Data Services (continued)

State Street Global Exchange GmbH, *Frankfurt, Germany*

External Investment Manager - Currency Overlay

State Street Bank Europe Limited, *Boston, USA*

External Investment Managers – External Equity Mandate

Granahan Investment Management Inc., *Waltham, USA*
MFS International (U.K.) Limited, *London, UK*

External Investment Managers – Funds

3i Investments plc, *London, UK*
AE Industrial Partners LLC, *Florida, USA*
Aeolus Capital Management Ltd., *Hamilton, Bermuda*
AIF Capital Limited, *Hong Kong*
Alcuin Capital Partners LLP, *London, UK*
Alken Luxembourg SA, *Luxembourg*
American Capital Limited, *Maryland, USA*
American Century Investments, *Luxembourg*
Apax Partner SAS, *Paris, FR*
Arbor Private Investment Company IV, LLC, *Chicago, USA*
Audax Group, *New York, USA*
AXA Funds Management SA, *Luxembourg*
Barings Global Credit Funds, *Luxembourg*
Bridgewater Associates Inc., *Westport, USA*
Capital Fund Management SA, *Paris, France*
Capricorn Investment Group LLC, *Palo Alto, US*
CapVest Associates LLP, *London, UK*
Citadel Advisors LLC, *Chicago, USA*
Craigmore Sustainables, *Christchurch, New Zealand*
Cressey & Company L.P., *Chicago, USA*

Crestview Partners, *New York, USA*
CS Real Estate SICAV, *Luxembourg*
DN Capital (UK) LLP, *London, UK*
Edmond De Rothschild Group, *Luxembourg*
Eiffel Investment Group SAS, *Paris, France*
Effissimo Capital Management, *Singapore*
Endeavour Vision SA, *Geneva, Switzerland*
EQT Fund Management S.à r.l., *Luxembourg*
Essling Capital, *Paris, France*
Fortissimo Capital, L.P, *Rosh Haayin, IL*
Freeport Financial Partners LLC, *Chicago, USA*
FTV Capital, *San Francisco, USA*
GHO Capital Management Limited, *London, UK*
Globetrotter Co-Investment (GP) Inc., *Delaware, USA*
Graham Partners, *Newton Square, USA*
Groupe Siparex, *Lyon, France*
H2O Asset Management, *London, UK*
HarbourVest Partners LLC, *Boston, USA*
Hydra Platform SPC, *Cayman Islands*
J.P. Morgan Asset Management, *New York, USA*
Keensight Capital, *Paris, France*
King Street Capital Management L.P., *New York, USA*
L Catterton Partners, *Greenwich, USA*
LBO France FPCI, *Paris, France*
Littlejohn & Co., *Greenwich, USA*
Macquarie Funds Group, *Sydney, Australia*
Main Post Partners LP, *San Francisco, USA*
Man Group, *London, UK*
Millennium International, *New York, USA*
MML Capital Partners, *London, UK*
Montefiore Investment, *Paris, France*

External Investment Managers – Funds (continued)

Nemo Investor Aggregator Limited, *Greenwich, USA*
NeoMed Management, *Oslo, Norway*
NXT Capital, *Chicago, USA*
Oak Hill Advisors, L.P., *New York, USA*
Pacific Community Ventures Inc., *San Francisco, USA*
PAI Partners SAS., *Paris, France*
Parallax Capital Partners, *Laguna Hills, USA*
Paul Capital Investments, *San Francisco, USA*
Premiere Global Services Inc., *New York, USA*
Primavera Capital Group, *Hong Kong, CH*
Quilvest Switzerland Limited, *Zurich, Switzerland*
Silverstone Capital Partners, *Atlanta, USA*
Siris Capital Group LLC, *New York, USA*
Sofinnova Partners SAS, *Paris, France*
Spectrum Equity Investors, *Boston, USA*
Spindletop Capital, *Austin, USA*
Systematica Investments, *Geneva, Switzerland*
SYZ Asset Management Luxembourg, *Luxembourg*
Talde Gestion SGEIC SA., *Bilbao, Spain*
TDR Capital LLP, *London, UK*
Technology Crossover Ventures, *Palo Alto, USA*
The CapStreet Group LLC., *Houston, USA*
TIAA Global Asset Management, *New York, USA*
Timberland Investment Resources LLC, *Boston, USA*
TowerBrook Capital Partners L.P., *New York, USA*
TPG Capital, *Fort Worth, USA*
Triangle Private Holdings I, LLC, *New York, USA*
Tudor Investment Corporation, *Greenwich, USA*
Two Sigma Investments, *New York, USA*
Veronis Suhler Stevenson LLC, *New York, USA*

External Investment Managers – Funds (continued)

Vision Capital Administration LLC, *Burlingame, USA*
Webster Capital Partners LLC, *Waltham, USA*

External Legal Advisers

14 Pyramides Notaires SCP, *Paris, France*
LPA-CGR avocats, *Paris, France*
Freshfields, *Frankfurt, Germany*
Gowling WLG LLP, *London, UK*
Oberson Abels SA, *Geneva*, *Switzerland*
Willkie Farr & Gallagher LLP, *London, UK*
Raue LLP, *Berlin, Germany*

Hedge Fund Adviser

Aksia Europe Limited, *London, UK*

Private Equity Adviser

Stepstone Group Europe LLP, *London, UK*

Real Estate Managers

Comité des forêts, *Paris, France*
Kinney Green, *London, UK*
Hayter International, *Paris, France*
Moser Vernet & Cie*, Geneva, Switzerland*
PRÄZISA*, Berlin*, *Germany*

Real Estate Valuation Experts

BNP Paribas Real Estate, *Paris, France*
EURL P Cochery*, Rambouillet, France*

Real Estate Auditors

BDO AG, *Berlin, Germany*
Cabinet Louis Planche, *Lyon, France*
Rawlinson & Hunter Audit LLP, *London, UK*
REVIDOR Société Fiduciaire SA, *Geneva, Switzerland*

2. 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
	Ferney	Ferney-Voltaire	8,244	Hotel
	Forêt de Vauchassis	Troyes	769 ha	Timberland
	Forêt de Gergy	Chalon-sur-Saône	727 ha	Timberland
	Forêt d’Avril	East of France	338 ha	Timberland
	Forêt du Miaule	East of France	250 ha	Timberland
Germany	Wallstrasse	Berlin	8,561	Commercial
	Mauerstrasse	Berlin	3,981	Commercial
UK	Monument Street	London, (The City)	7,718	Commercial
	Dean Farrar Street	London, (Victoria)	2,830	Commercial
	Queen Anne’s Gate	London, (Victoria)	2,311	Commercial

FINANCIAL STATEMENTS

III. Audit Opinion

NATIONAL AUDIT OFFICE OF FINLAND

Helsinki, 17 May 2019

External Auditor´s Opinion

on the Financial Statements of the Pension Fund of the European Organization for Nuclear Research (CERN) for the year ended 31 December 2018

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 2018, issued under document reference CERN/FC/*6328-CERN/3427* dated 23 May 2019. These financial statements comprise the statement of financial position, the statement of changes in net assets, the statement of the financial performance, the cash flow statement 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 2018, its financial performance and 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 International Standards of Supreme Audit Institutions (ISSAIs). Our responsibilities under those standards are further described in the "Auditor's responsibilities for the audit of the financial statements" section of our report. 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 net result of membership activities, which comprise the contributions to the Fund and benefits and payments of the Fund, was 77,9 MCHF negative in 2018 whereas the net result of the investment activities deducted by other expenses was 22,6 MCHF positive. Accordingly, the Pension Fund´s net assets available for benefits decreased from 4,259 MCHF as of 31.12.2017 to 4,203 MCHF as of 31.12.2018.

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

Key audit matters

Key audit matters are those matters 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 2018 were as follows:

1) Valuation of Pension Fund assets

Pension Funds asset available for benefits totals 4,203 MCHF. The valuation of the assets was addressed by the audit by analytical reviews and verification of the information provided in the Custodian's reports against relevant account balances. Sampled transactions related to asset balances were tested. For investment property, valuations of the assets were verified from independent evaluators' reports.

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.

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 have not been made, in all significant respects, in accordance with the relevant regulations of the Pension Fund.

Information other than the financial statements and auditor's report thereon

Management is responsible for the other information, included in the Pension Fund Annual Report that comprises Pension Fund Governing Board Report and Extract of Actuary's Report on the Fund as at 31 December 2018, apart from 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 management is responsible for the preparation and fair presentation of the financial statements in accordance with IPSAS and for such internal control as management determines to be necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, 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 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.

Auditor's responsibilities for 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 auditor's report that includes our opinion. Reasonable assurance is 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 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 management.

- Draw conclusions as to the appropriateness of 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 auditor's 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 auditor's report. However, future events or conditions may cause CERN Pension Fund to cease to continue 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 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.

Tytti Yli-Viikari
Auditor General

Petri Nurmi
Principal Financial Auditor

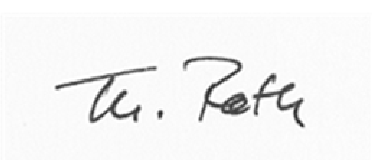
Helsinki, 17 May 2019

IV. Financial Statements

1. Statement of Financial Position

(in kCHF)	Note	As at 31 December 2018	2017
Assets			
Cash and Cash Equivalents	5	629,384	439,738
Short-Term Deposits	6	106,345	108,505
Settlements Receivable		5,927	79,486
Sundry Debtors	7	3,878	3,765
Other Receivables	8	3,851	4,981
Derivatives	9	87,544	41,157
Bonds	10	948,774	958,177
Equities	11	474,170	634,226
Investment Funds	12	1,260,152	1,230,061
Total Financial assets		3,520,025	3,500,096
Investment Property	13	731,843	824,478
Total Non-Financial assets		731,843	824,478
Total assets		4,251,868	4,324,574
Liabilities			
Settlements Payable		399	2,359
Sundry Creditors	14	14,750	15,107
Other Payables	15	4,213	3,632
Derivatives	9	29,172	44,831
Total liabilities		48,534	65,929
Net assets available for benefits		4,203,334	4,258,645

(in kCHF)	Note	As at 31 December 2018	2017
Vested pension capital **			
Transfer values of active members or current value of deferred pensions (without future adjustment)		4,931,476	5,033,870
Mathematical reserves of the beneficiaries		5,140,580	5,225,386
Vested pension capital		10,072,056	10,259,256
Technical deficit		(5,868,722)	(6,000,611)
Funding Ratio		41.7%	41.5%



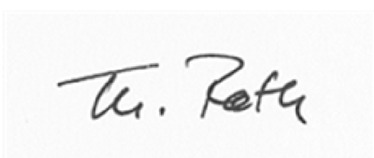
**Extract of Actuary's Report – see section VI

2. Statement of Financial Performance

(in kCHF)	Note	Year ended 31 December 2018	2017
Investment Income			
Financial Assets			
Dividend Income		35,199	40,100
Interest Income	16	20,949	24,962
Unrealised Gains/(Losses) on Financial Assets at Fair Value Through Profit & Loss	17	(25,954)	233,795
Realised Gains/(Losses) on Financial Assets at Fair Value Through Profit & Loss	18	(13,465)	21,729
Non-Financial Assets			
Investment Property Income	19	78,817	140,266
Foreign Exchange Gains/(Losses)	20	(20,943)	(131,165)
Total Investment Income/(Loss)		74,603	329,687
Investment Expenses			
Financial Assets			
Investment Management Fees	21	21,662	22,170
Custody Fees and Administration of Securities	22	978	1,296
Transaction Costs		1,465	1,349
Taxation		325	165
Non-Financial Assets			
Investment Property Expenditure	23	12,472	10,636
Investment Related Expenditure	24	5,406	3,635
Total Investment Expenses		42,308	39,251
Net Investment Income/(Loss)		32,295	290,436
Other Expenses			
Bank Charges		71	100
Other Financial Expenses	25	4,002	2,789
Administration Costs	26,29	5,663	5,518
Total Other Expenses		9,736	8,407
Change in Net Assets before Membership Activities		22,559	282,029
Membership Activities	27		
Contributions			
Member Contributions		63,806	61,625
Employer Contributions		116,031	113,124
Employer Special Contributions		62,100	61,300
Purchase of additional years of membership		2,693	2,656
Indemnities received from third parties		62	289
Compensations	28	1,156	1,186
Procurement of entitlement to pension for surviving spouse		84	61
Total Contributions		245,932	240,241
Benefits and Payments			
Retirement pensions		250,257	251,452
Disability pensions		2,453	2,661
Surviving spouse pensions		42,883	41,162
Orphans pensions		1,464	1,417
Family allowances		13,996	14,391
Ex gratia payments granted		66	66
Transfer values paid to members		12,044	12,028
Transfer values paid to other schemes		460	232
Contributions paid to other schemes		179	166
Total Benefits and Payments		323,802	323,577
Net Membership Activities Cost		(77,870)	(83,336)
Net Increase/(Decrease) in Net Assets During Year		(55,311)	198,693
Net Assets Available for Benefits at Beginning of Year		4,258,645	4,059,952
Net Assets Available for Benefits at End of Year		4,203,334	4,258,645

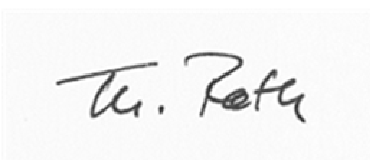
3. Cash Flow Statement

(in kCHF)	Note	Year ended 31 December 2018	2017
Cash flows from membership activities			
Contributions and other receipts		244,870	239,931
Benefits and other payments		(320,528)	(321,961)
Net cash flows from membership activities		(75,658)	(82,030)
Cash flows from investing activities			
Financial Assets			
Purchases of Short-Term Deposits		(50,000)	(104,610)
Purchases of Bonds		(1,010,003)	(1,156,030)
Purchases of Equities		(523,214)	(500,374)
Purchases of Investment Funds		(285,360)	(313,979)
Proceeds of Short-Term Deposits		50,000	104,610
Proceeds from sale of Bonds		976,624	1,179,454
Proceeds from sale of Equities		662,929	660,923
Proceeds from sale of Investment Funds		338,380	380,420
Net payments from Derivatives		(81,450)	(199,408)
Dividends received		33,545	40,590
Net Interest received		19,029	20,489
Non-Financial Assets			
Investment Property payments		(20,898)	(16,683)
Proceeds from sale of Investment Property		140,172	44,812
Investment Property receipts		37,860	41,160
Tax reimbursements		586	75
Management and Custody Fees paid		(4,650)	(5,751)
Administrative and other Operating expenses paid		(11,646)	(10,683)
Net cash flows from investing activities		271,904	165,015
Net (decrease) increase in cash and cash equivalents		196,246	82,984
Cash at beginning of the year		439,738	351,160
Exchange gains /(losses) on cash and cash equivalents		(6,600)	5,594
Cash at end of the year		629,384	439,738



4. Statement of Changes in Net Assets Available for Benefits

(in kCHF)	Note	2018	2017
Balance as at 1 January		4,258,645	4,059,952
Employer Contributions		116,031	113,124
Member Contributions		63,806	61,625
Employer Special Contributions		62,100	61,300
Purchase of additional years		2,693	2,656
Indemnities and Compensations		1,218	1,475
Procurement of Entitlement to pension for surviving spouse		84	61
Benefits paid		(311,119)	(311,151)
Transfer values and contributions paid		(12,683)	(12,426)
Investment Income/(Loss)		74,603	329,687
Investment Expenses		(42,308)	(39,251)
Other Expenses		(9,736)	(8,407)
Balance as at 31 December		4,203,334	4,258,645



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: http://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 incapacity, 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, at his request, 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.

1.4.1. Beneficiaries

As at 31 December 2018 the number of beneficiaries was 3,662 (3,631 as at 31 December 2017), representing an increase of 0.9%.

1.4.2. Members

As at 31 December 2018 the number of members of the Fund was 3,991 (CERN: 3506 and ESO: 485) compared to 3,916 (CERN: 3,440 and ESO: 476) as at 31 December 2017. This represents an increase of 1.9%.

1.5. Investment policy

The Fund's principles governing the investment policy are set out in the Statement of Investment Principles CERN/PFGB/66.8/Rev.3/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 2018 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 4 April 2019 the PFGB approved the submission of the CERN Pension Fund Annual Report and Financial Statements for 2018 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 standard, that is issued but not yet effective, up to the date of issuance of the Fund's financial statements, is disclosed below. The Fund intends to adopt this standard, if applicable, when it becomes effective:

i. IPSAS 40, Public Sector Combinations – effective January 1, 2019.

Once effective, the above standard is not expected to have any effects 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, private equity and private debt investments are categorized as financial assets designated at fair value through profit or loss at inception and are 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 not been required to make any significant judgements for the financial years 2018 and 2017.

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 8 February 2019 (CERN/PFGB/78.3) and also those used in the corresponding period. The reference discount rate is the interest rate on long-term Swiss Confederation Bonds, however, the principle that the discount rate should not fall below the best estimate of future inflation has been applied again in 2018. The best estimate of future inflation is 1.18%. As a result the discount rate applied for 2018 is 1.18% (1.38% in 2017). All other assumptions used as at 31 December 2018 are identical to those adopted for the 2019 Periodic Actuarial Review, presented as single equivalent spot rates or a liability-weighted average for simplicity.

Actuarial Assumptions	2018	2017
Discount Rate	1.18%*	1.38%***
Remuneration increase linked to inflation	1.18%*	1.38%***
Indexation of pensions linked to inflation	1.18%*	1.38%***
Remuneration increase linked to career change	1.40%**	1.5%
Mortality and disability tables	77% ICSLT2013 GEN	83% VZ 2010 GEN

**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 1.4% p.a. when expressed as a liability-weighted average, however the underlying assumption is the best estimate assumption that will be used for the Periodic Actuarial Review as at 1 January 2019 i.e. 0% for Fellows and for non-Fellows a 2.0% to 1.2% linear reduction between ages 18 to 66.*

****The underlying best estimate assumption has the following term structure: 1% p.a. until 2024, 1.50% p.a. from 2025. The single equivalent spot rate describes this underlying term structure.*

Buck Consultants Limited London is the Fund's Actuary. An extract of the Actuary's Report on the Fund as at 31 December 2018 is included in section VI for information purposes.

In 2018, the Fund's Actuary proposed changes to the actuarial assumptions compared to 2017 and these were accepted by the PFGB. The sensitivity of results as at 31 December 2018 to changes in the discount rate, indexation of pensions, 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 2018 the discount rate, indexation of pensions and indexation of remuneration used to determine the present value of future promised benefits was 1.18% (1.38% in 2017). The effect of this change was an increase in liabilities of 58,509 kCHF. In 2018 the remuneration increase linked to career change assumption was 1.40% when expressed as a liability-weighted average (1.5% in 2017). The effect of these change was a decrease of 65,333 kCHF. Following an analysis of the mortality experience of the Fund by the Actuary the mortality assumption in 2018 was 77% of the ICSLT2013 base generational tables (83% of the VZ2010 generational tables in 2017). The effect of this change was a decrease of 62,307 kCHF in liabilities. During the year the Actuary reviewed the spouse age gap assumption and proposed a new Best Estimate assumption of 3 years for 2018 that better reflects the Fund's membership compared to the age and gender dependent age differences contained in the standard VZ2010 tables that were used in 2017. The effect of this change was a 251,810 kCHF decrease in the liabilities.

Total liabilities, as at 31 December 2018, were 10,072 MCHF (10,259 MCHF as at 31 December 2017).

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 2018 the fair value of Investment Property was 731,843 kCHF (824,478 kCHF as at 31 December 2017).

The fair values of the Investment Property were determined based on valuations performed by independent valuers, as at 31 December 2018 and 2017. 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 3.38% to 5.75% (3.48% to 5.75% in 2017);
- 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

The Fund holds positions in investment funds, many of whom 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 2018 provided by the independent administrators or fund. In the case of seventy one private equity/debt funds (seventy four in 2017) unaudited statements as at 30 September 2018 were used, as adjusted for capital movements between the last received statements and 31 December 2018.

As at 31 December 2018 the Fund had holdings in investment funds totalling 688,487 kCHF (641,105 kCHF in 2017) that are not quoted in an active market. Valuations totalling 407,405 kCHF (507,998 kCHF in 2017) 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:

(in kCHF)	2018 Total Net Asset Value	2018 Outstanding Commitment	2017 Total Net Asset Value	2017 Outstanding Commitment
European Private Equity	147,109	32,311	114,633	64,744
US Private Equity	105,800	43,222	91,381	46,527
Private Debt	59,836	17,002	76,910 *	24,283
Real Estate funds	63,663	13,486	60,778	737
Total	376,408	106,021	343,702	136,291

An amount of 59,164 kCHF included in Total Net Asset Value as at 31 December 2017 previously classified as "Private Debt" has been reclassified as "Fixed Income funds". This reclassification does not affect the Outstanding Commitment as at 31 December 2017.

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.

*Re-stated

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 IC. 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 2018 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 2018 all quarterly evaluations of the estimated 1 Year 5% CVaR showed that the Fund was within the risk limit. As at 31 December 2018 the estimated 1 Year 5% CVaR of the Fund was -7.4% (-7.1% as at 31 December 2017), 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)	2018	2017
Assets		
Bonds	948,774	958,177
Equities	474,170	634,226
Investment Funds	1,260,152	1,230,061
Derivatives	87,544	41,157
Total Financial assets	2,770,640	2,863,621
Liabilities		
Derivatives	29,172	44,831
Total Financial liabilities	29,172	44,831

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 2018 is disclosed in note 9. "Derivatives".

As at 31 December 2018, 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 155 kCHF (36,618 kCHF as at 31 December 2017).

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)	2018	2017
Euro	1,592,910	1,712,912
US dollar	1,464,550	1,569,926
Pound sterling	307,908	421,516
Japanese yen	120,062	133,133
Swedish krona	26,724	30,107
Other currencies	45,602	53,801
Total	3,557,756	3,921,395

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	2018	2017
Euro	1.1269	1.1701
Pound sterling	1.2555	1.3182
US dollar	0.9858	0.9745

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:

	2018	2017
Global Fixed Income	949 MCHF	958 MCHF
0 - 1 year	0%	0%
1 - 3 years	6%	0%
3 - 5 years	11%	14%
5 - 7 years	30%	26%
7 - 10 years	30%	39%
> 10 years	23%	21%
Total	100%	100%

The duration of the above securities, which is the weighted-average term to maturity of the cash flows, was 7.83 years at 31 December 2018 (2017: 7.14 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)	2018	2017
Euro	56,345	58,505
Swiss franc	79,768	69,847
Total	136,113	128,352

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 2018, 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 6,094 kCHF (4,858 kCHF higher as at 31 December 2017).

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:

	2018	2017
Global Fixed Income	949 MCHF	958 MCHF
AAA	14%	4%
AA	36%	21%
A	17%	17%
BBB	28%	43%
BB-B	5%	14%
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)	2018	2017	
Bonds	948,774	958,177	
Cash and Cash Equivalents	629,384	439,738	
Fixed Income funds	171,885	163,155	*
Private Debt	59,836	76,910	*
Short Term Deposits	106,345	108,505	
Derivatives	87,544	41,157	
Settlements Receivable	5,927	79,486	
Other assets	7,730	8,746	
Total	2,017,425	1,875,874	

No material financial assets were past due as at 31 December 2018.

An amount of 59,164 kCHF as at 31 December 2017 previously classified as "Private Debt" has been reclassified as "Fixed Income funds". A comparative amount of 163,155 kCHF has been included for "Fixed Income funds" in 2017.

*Re-stated

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 2018			
Settlements payable	399		
Members and Beneficiaries	6,551		
Investment property deposits			2,876
Taxes payable		551	
Investment property creditors		4,409	
Reimbursements of contributions	1,254		
Payments Outstanding		2,959	
Total	8,204	7,919	2,876
As at 31 December 2017			
Settlements payable	2,359 *		
Members and Beneficiaries	5,211		
Investment property deposits			3,468
Taxes payable		457	
Investment property creditors		5,548	
Reimbursements of contributions	1,074		
Payments Outstanding		2,558	
Total	8,644	8,563	3,468

An amount of 2,359 kCHF in "Settlements Payable" as at 31 December 2017 was previously omitted in the presentation of the note 4.1.3.

*Re-stated

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)	1-6 months
At 31 December 2018	
Forwards	8,275
Credit default swaps	476
Swaps	17,750
Futures	857
Options	1,814
Total	29,172
At 31 December 2017	
Forwards	33,099
Credit default swaps	7,354
Swaps	3,536
Futures	312
Options	530
Total	44,831

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 2018:

(in kCHF)	Level 1	Level 2	Level 3	Total
Assets				
Financial assets designated at fair value through profit or loss:				
Cash and Cash Equivalents (Money Market funds)	96,767	-	-	96,767
Equities	474,108	-	62	474,170
Bonds	-	948,774	-	948,774
Investment Funds	453,561	-	806,591	1,260,152
Sub total	1,024,436	948,774	806,653	2,779,863
Financial assets held for trading:				
Derivatives	24,530	60,970	2,044	87,544
Sub total	24,530	60,970	2,044	87,544
Total assets at fair value through profit or loss	1,048,966	1,009,744	808,697	2,867,407
Liabilities				
Financial liabilities held for trading:				
Derivatives	(2,671)	(25,480)	(1,021)	(29,172)
Total liablities at fair value through profit or loss	(2,671)	(25,480)	(1,021)	(29,172)

The following table analyses within the fair value hierarchy the Fund's assets measured at fair value at 31 December 2017:

(in kCHF)	Level 1	Level 2	Level 3	Total
Assets				
Financial assets designated at fair value through profit or loss:				
Equities	634,167	-	59	634,226
Bonds	-	958,177	-	958,177
Investment Funds	483,113 *	-	746,948 *	1,230,061
Sub total	1,117,280	958,177	747,007	2,822,464
Financial assets held for trading:				
Derivatives	4,570	35,612	975	41,157
Sub total	4,570	35,612	975	41,157
Total assets at fair value through profit or loss	1,121,850	993,790	747,982	2,863,621
Liabilities				
Financial liabilities held for trading:				
Derivatives	(448)	(43,989)	(394)	(44,831)
Total liablities at fair value through profit or loss	(448)	(43,989)	(394)	(44,831)

An amount of 69,172 kCHF previously included in the heading "Investment Funds Level 1" has been reclassified as "Investment Funds Level 3" and re-stated as at 31 December 2017.

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 2018 nor 31 December 2017.

The following table presents the movement in level 3 instruments for the year ended 31 December 2018 by class of financial instrument:

(in kCHF)	Equities	Derivatives	Investment Funds	Total
Opening balance	59	581	746,948	747,588
Purchases	-	-	16,520	16,520
Sales	-	-	(40,399)	(40,399)
Transfers into level 3	-	-	-	-
Unrealised Gains/(Losses) on Financial Assets at Fair Value				-
Through Profit & Loss	3	-	78,127	78,130
Realised Gains/(Losses) on Financial Assets at Fair Value				
Through Profit & Loss	-	442	5,395	5,837
Closing balance	62	1,023	806,591	807,676

*Re-stated

The following table presents the movement in level 3 instruments for the year ended 31 December 2017 by class of financial instrument:

(in kCHF)	Equities	Derivatives	Investment Funds		Total
Opening balance	234	37	695,457	*	695,728
Purchases	54		69,239		69,293
Sales	(126)	-	(99,326)		(99,452)
Transfers into level 3	-	-	-		-
Unrealised Gains/(Losses) on Financial Assets at Fair Value					-
Through Profit & Loss	-	-	78,310		78,310
Realised Gains/(Losses) on Financial Assets at Fair Value					
Through Profit & Loss	(103)	544	3,268		3,710
Closing balance	59	581	746,948	*	747,588

An amount of 69,172 kCHF previously included in the heading "Investment Funds Level 1" has been reclassified as "Investment Funds Level 3" and re-stated as at 31 December 2017.

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 2018 nor as at 31 December 2017.

The Fund was invested in a total of 227,946 kCHF, including one exchange-traded fund and two unlisted funds, as at 31 December 2018, each investment representing five percent or more of Investment Funds. (As at 31 December 2017: 318,850 kCHF in two exchange-traded funds and two unlisted funds).

The Fund was also invested in a total of 49,359 kCHF in one government bond as at 31 December 2018, representing five per cent or more of Bonds. (As at 31 December 2017: No investments in bonds represented five per cent or more of Bonds)

The Fund had currency forward asset positions hedging US dollars, Euro and Pound Sterling against Swiss francs, swap and option asset positions, totalling 86,087 kCHF as at 31 December 2018 each representing five percent or more of the Derivatives assets balance. (As at 31 December 2017: 22,204 kCHF representing currency forward positions hedging US dollars, against Swiss francs).

As at 31 December 2018 the Fund had currency forward liability positions hedging US dollars and Japanese Yen and swap liability positions totalling 27,002 kCHF, each representing five percent or more of the Derivatives liabilities balance. (As at 31 December 2017: 31,673 kCHF representing currency forward positions hedging Euro, US dollars and Pound Sterling).

*Re-stated

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)	2018	2017
Current accounts	492,016	396,141
Money Market funds	96,767	-
Deposit accounts	29,768	19,847
Margin accounts with brokers	10,833	23,750
Total	629,384	439,738

Cash and Cash Equivalents as at 31 December 2018 were higher compared to the prior year, mostly due to the proceeds received from the sale of two Investment Property during the year.

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)	2018	2017
Recoverable taxes	2,636	1,486
Investment property debtors	1,186	2,230
Other due amounts	56	49
Total	3,878	3,765

8. Other Receivables

(in kCHF)	2018	2017
Accrued interest	26	34
Dividends receivable	590	287
Outstanding receipts	95	467
Payments in advance	3,140	4,193
Total	3,851	4,981

9. Derivatives

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

(in kCHF)	2018 Assets	2018 Liabilities	2017 Assets	2017 Liabilities
Forwards:				
Currency Overlay programme	27,383	(8,275)	26,582	(29,458)
Other	-	-	1,024	(3,641)
Credit default swap	796	(476)	4,814	(7,354)
Swaps	32,791	(17,750)	3,192	(3,536)
Futures	429	(857)	1,344	(312)
Options	26,145	(1,814)	4,201	(530)
Total	87,544	(29,172)	41,157	(44,831)

10. Bonds

The fair value of investments in bonds, 948,774 kCHF as at 31 December 2018 (958,177 kCHF as at 31 December 2017) is as follows:

(in kCHF)	2018	2017
Europe, Middle East and Africa	608,531	596,094
North America	216,177	247,636
Asia	101,058	89,918
Emerging Markets	23,008	24,529
Total	948,774	958,177

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, 474,170 kCHF as at 31 December 2018 (634,226 kCHF as at 31 December 2017) is as follows:

(in kCHF)	2018	2017
Europe, Middle East and Africa	297,431	487,010
North America	166,837	140,326
Asia	7,463	5,605
Emerging Markets	2,439	1,285
Total	474,170	634,226

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

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, 1,260,152 kCHF as at 31 December 2018 (1,230,061 kCHF as at 31 December 2017) is as follows:

(in kCHF)	2018	2017	
Equity funds	399,780	425,801	
Alternative funds	312,079	297,403	
Private Equity	252,909	206,014	
Fixed Income funds	171,885	163,155	*
Real Estate funds	63,663	60,778	
Private Debt	59,836	76,910	*
Total	1,260,152	1,230,061	

An amount of 59,164 kCHF as at 31 December 2017 previously classified as "Private Debt" has been reclassified as "Fixed Income funds".

13. Investment Property

The fair value of Investment Property, 731,843 kCHF as at 31 December 2018 (824,478 kCHF as at 31 December 2017) is as follows:

(in kCHF)	2018	2017
As at 1 January	824,478	764,399
Sales	(122,344)	(36,716)
Net gain/(loss) for fair value adjustments (price)	49,903	57,598
Net gain/(loss) for fair value adjustments (foreign exchange)	(20,194)	39,197
As at 31 December	731,843	824,478

During the year, there were two sales of Investment Property, one in France and one in the United Kingdom. (one in France and one in the United Kingdom in 2017).

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)	2018	2017
Members and Beneficiaries	6,551	5,211
Investment property deposits	2,876	3,468
Taxes payable	551	457
Investment property creditors	4,409	5,548
Deferred Income	363	423
Total	14,750	15,107

*Re-stated

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)	2018	2017
Reimbursements of Contributions	1,254	1,074
Payments Outstanding	2,959	2,558
Total	4,213	3,632

16. Interest Income

(in kCHF)	2018	2017
Cash and Cash Equivalents	598	74
Short term deposits	108	372
Bonds	20,243	24,516
Total	20,949	24,962

17. 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.

			2018			2017
(in kCHF)	Price	Currency	Total	Price	Currency	Total
Cash and Cash Equivalents	1,242	(3,378)	(2,136)	-	-	-
Bonds	(14,050)	(8,075)	(22,125)	9,123	23,266	32,389
Equities	(38,936)	(11,132)	(50,068)	73,081	17,352	90,433
Investment Funds	27,070	2,545	29,615	116,565	(5,406)	111,159
Derivatives	18,856	(96)	18,760	(145)	(41)	(186)
Total	(5,818)	(20,136)	(25,954)	198,624	35,171	233,795

18. 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.

(in kCHF)	Price	Currency	2018 Total	Price	Currency	2017 Total
Bonds	(12,565)	(5,616)	(18,181)	9,953	9,765	19,718
Equities	32,426	(2,038)	30,388	29,273	1,333	30,606
Investment Funds	3,897	1,740	5,637	14,748	(5,315)	9,433
Derivatives	(31,785)	476	(31,309)	(38,137)	108	(38,029)
Total	(8,027)	(5,438)	(13,465)	15,838	5,891	21,729

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.

19. Investment Property Income

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

(in kCHF)	2018	2017
Rental Income:		
Residential Property	12,220	12,202
Office Property	18,015	21,003
Agricultural property	103	238
Non-Rental Income:		
Agricultural property	303	1,255
Forests	587	471
Changes in fair value	29,709	96,795
Gains/(Losses) on Sales	17,880	8,302
Total	78,817	140,266

Gains of 49,903 kCHF for fair value price adjustments and losses of 20,194 kCHF for fair value adjustments as a result of foreign exchange movements, are included in “Changes in fair value” above. The corresponding amounts in 2017 were a gain of 57,598 kCHF and a gain of 39,197 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)	2018	2017
Not later than 1 year	29,256	28,732
Between 1 and 5 years	90,385	94,612
Later than 5 years	21,313	23,610
Total	140,954	146,954

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

20. Foreign Exchange Gains/(Losses)

Foreign Exchange Gains/(Losses) includes losses of 9,258 kCHF (losses of 139,298 kCHF in 2017) 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)	2018	2017
Currency Overlay programme	(9,258)	(139,298)
Other exchange rate movements	(11,685)	8,133
Total	(20,943)	(131,165)

21. Investment Management Fees

21.1. Recorded Investment Management Fees

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

(in kCHF)	2018	2017
Reported Investment Management Fees	20,222	20,834
Calculated Investment Management Fees	1,440	1,336
Total	21,662	22,170

The above Investment Management fees also include performance fees.

21.2. Non-recorded Investment Management Fees

For less than 4% of Total Financial assets (less than 3% in 2017) 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 2018 was 164,409 kCHF (132,429 kCHF as at 31 December 2017).

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

22. Custody Fees and Administration of Securities

The amount under the heading Custody Fees and Administration of Securities has decreased in 2018 following the transition to a new custodian.

23. Investment Property Expenditure

(in kCHF)	2018	2017
Residential Property	6,509	7,518
Office Property	5,002	1,815
Agricultural property	767	1,066
Forests	194	237
Total	12,472	10,636

24. Investment Related Expenditure

Investment Related Expenditure includes 1,000 kCHF paid in the execution of a litigation settlement agreement.

25. Other Financial Expenses

Other Financial Expenses were 4,002 kCHF for the period ending 31 December 2018 (2,789 kCHF in 2017). During the year the Fund was exposed to negative interest rates in some currencies, notably Swiss Franc and Euro rates. The increase in Other Financial Expenses was largely as a result of an increase in the level of cash held during the year compared to 2017.

26. Administration Costs

Administration costs of 5,663 kCHF in the period ending 31 December 2018 (5,518 kCHF for the period ending 31 December 2017) were as follows:

(in kCHF)	2018	2017
Personnel Costs	4,021	3,940
Operating Expenses	1,381	1,279
Supplies	45	79
Audit/Valuation costs relating to Investment Property	216	220
Total	5,663	5,518

27. 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.

28. 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 2018 were 1,036 kCHF (1,091 kCHF in 2017) and are included in the total amount of 1,156 kCHF (1,186 kCHF in 2017).

29. 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 2018 totalled 93 kCHF (116 kCHF in 2017);

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: 271 kCHF for the development of a new Benefits Management System (339 kCHF in 2017).
- Industry, Procurement and Knowledge Transfer department: 40 kCHF for procurement services (26 kCHF in 2017).
- IT department: 6 kCHF (6 kCHF in 2017) for the maintenance cost of two servers.
- Legal Service: 92 kCHF (82 kCHF in 2017).
- Translation Service: 4 kCHF (4k CHF in 2017).

In 2018 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.

30. Events after the Balance Sheet Date

There were no material events after the Balance Sheet Date.

VI. Extract of Actuary's Report on the Fund as at 31 December 2018

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 2018' dated March 2019 (Best Estimate).

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

1. Actuarial assumptions

Actuarial assumptions	IAS26 31 December 2018	IAS26 31 December 2017	Best Estimate 31 December 2018	Best Estimate 31 December 2017
Financial assumptions	**% p.a.**	**% p.a.**	**% p.a.**	**% p.a.**
Discount rate	1.18	1.38	1.50 (2019 – 2021) 2.50 (2022 – 2026) 4.50 (2027 – 2031) 5.70 (2032 onwards)	4.00 (Until 2019) 4.50 (2020 – 2024) 5.00 (2025 onwards)
Indexation of pensions linked to inflation	1.18	1.38	0.70 (2019 – 2021) 0.90 (2022 – 2026) 1.00 (2027 – 2031) 1.40 (2032 onwards)	1.00 (Until 2024) 1.50 (2025 onwards)
Inflation and remuneration increase linked to inflation	1.18	1.38		
Remuneration increase linked to career change	1.40 (age related scale)	1.50	1.40 (age related scale)	Age related scale
Demographic assumptions	**IAS26 31 December 2018**	**IAS26 31 December 2017**	**Best Estimate 31 December 2018**	**Best Estimate 31 December 2017**
Mortality and disability tables	77% ICSLT2013	83% VZ2010	77% ICSLT2013	83% VZ2010
Spouses' age gap	Males are assumed to be 3 years older than their female spouses and vice versa	Age and gender dependent age differences contained in the VZ2010 standard tables	Males are assumed to be 3 years older than their female spouses and vice versa	Age and gender dependent age differences contained in the VZ2010 standard tables
Exit assumptions	Under age 40: 2.3% p.a. Ages 40 and over: 0.8% p.a.	Contract specific	Under age 40: 2.3% p.a. Ages 40 and over: 0.8% p.a.	Contract specific
Method of evaluating benefits on exit	18% Transfer Value / 82% present value of accrued deferred pension on average			

Some narrative has been provided on the following page 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. In order to ensure that the discount rate more adequately reflects the time value of money, the Actuary to the Fund believes that it is reasonable for CERN to continue to adopt the principle that the discount rate should never fall below the best estimate of future inflation. Applying a consistent approach to the 31 December 2017 disclosures results in a discount rate of 1.18% p.a. when expressed as a 30 year spot rate (1.38% p.a. as at 31 December 2017). The underlying best estimate assumption has the following term structure: 0.7% p.a. until 2021, 0.90% p.a. from 2022 to 2026, 1.0% p.a. from 2027 to 2031 and 1.4% p.a. from 2032. This assumption has been updated since 31 December 2017 to reflect a revised inflation assumption. The single equivalent spot rate is calculated based on this underlying term structure.

Prior to 2015, the determination of the discount rate by CERN was made on the basis of the spot yield on Swiss Confederation bond issues at term 30 years as published by the Swiss National Bank. At 31 December 2018 the yield was 0.368% p.a. As this yield is below the inflation assumption, the relevant floor has been applied.

Inflation – related assumptions

IAS26 does not state any method for determining the rate of inflation 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 2018.

For the 31 December 2018 disclosure CERN have set their assumption to be consistent with the current best estimate of future inflation suggested by the Fund’s risk consultant, Ortec Finance. This results in an inflation assumption of 1.18% p.a. as at 31 December 2018 when expressed as a 30 year spot rate (1.38% p.a. as at 31 December 2017). The underlying best estimate assumption has the following term structure: 0.7% p.a. until 2021, 0.90% p.a. from 2022 to 2026, 1.0% p.a. from 2027 to 2031 and 1.4% p.a. from 2032. This assumption has been updated since 31 December 2017 to reflect the updated views of Ortec Finance. The single equivalent spot rate is calculated based on this underlying term structure.

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 2018 assumption has been set on average as 1.40% p.a. The assumption is an update from the 31 December 2017 disclosures to reflect the best estimate proposed for the 1 January 2019 Periodic Actuarial Review. The average assumption has been calculated as a liability weighted average. The full assumption will be used for the purposes of the calculation and is a rate of 0% p.a. for Fellows and a linear scale from 2.0% p.a. to 1.2% p.a. between ages 18 to 66 for non-Fellows.

Mortality assumption

The 31 December 2018 mortality assumption has been updated to reflect the best estimate proposed for the 1 January 2019 Periodic Actuarial Review. The ICSL2013 table is based on mortality data from European-based International Civil Servants which is considered to be a closer fit to the characteristics of the participants of the Fund and also allows for future improvements.

The best estimate mortality experience study examined the Fund's mortality experience for the 15 years up to and including 1 January 2018. The analysis assessed both the base table and the assumption for future improvements in mortality. 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 77% applied to the probabilities contained within the ICSL2013 tables result in the best match for expected experience versus actual experience.

The assumption used at 31 December 2017 was 83% of the VZ2010 table.

Spouses' age gap

The 31 December 2018 spouses' age gap assumption has been updated to the best estimate proposed for the 1 January 2019 Periodic Actuarial Review.

A review of the assumption was carried out which considered national statistics and Fund membership data. Based on this review, a simplified best estimate assumption was determined. The new assumption better reflects the characteristics of the participants of the Fund compared with the previous assumption which was based on age and gender dependent decrements contained within the VZ2010 set of tables.

2. Technical balance sheet under IAS26

Balance sheet	31 December 2018 IAS26 000's CHF	31 December 2018 with 2017 IAS26 assumptions 000's CHF*	31 December 2017 IAS26 000's CHF
Total assets of the Fund	4,203,334	4,203,334	4,258,645
Liabilities in respect of members	*(4,931,476)*	*(5,158,095)*	*(5,033,870)*
Liabilities in respect of beneficiaries	*(5,140,580)*	*(5,222,188)*	*(5,225,386)*
Total Liabilities	(10,072,056)	(10,380,282)	(10,259,256)
Surplus/(Deficit) in the Fund	**(5,868,722)**	**(6,176,948)**	**(6,000,611)**
Funding Level under IAS26 (%)	**41.7**	**40.5**	**41.5**

The table below summarises the impact on the accounting liability at 31 December 2018 of changing the assumptions which have been updated since 31 December 2017:

Assumption	**31 December 2018**	**31 December 2017**	**(Increase)/decrease to the liability at 31 December 2018 000's CHF**
Discount rate, Indexation of pensions linked to inflation and Inflation and remuneration increase linked to inflation	1.18% p.a.	1.38% p.a.	(58,509)
Remuneration increase linked to career change	1.40% p.a.	1.50% p.a.	65,333
Mortality and disability tables	77% ICSLT2013 Generational	83% VZ 2010 Generational	62,307
Early retirement	Age & contract dependent (new table)	Age & contract dependent	(39,326)
Spouses' age gap	3 years	VZ2010 based assumption	251,810
Exit assumptions	Under age 40: 2.3% p.a. Ages 40 and over: 0.8% p.a.	Fellows: 0.5% p.a. Non-Fellows: 3.0% p.a.	42,039
Contract transitions	Table of assumptions (updated)	Table of assumptions	(5,486)

The table below shows the impact on the IAS26 liability results at 31 December 2018 (with a starting position of 10,072,056 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	920,361	(1,071,764)
Inflation (including impact on indexation of pensions and salaries)**	(964,031)	803,371
Indexation of remuneration	(272,747)	252,778

**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 10,072,056 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 (in nominal terms).*

***For this sensitivity there is no corresponding change to the discount rate, which remains fixed at the stated assumption.*

3. Technical Balance Sheet using Best Estimate Assumptions

Balance sheet	31 December 2018 000's CHF	31 December 2017 000's CHF
Total assets of the Fund	4,203,334	4,258,645
Liabilities in respect of members	*(2,174,499)*	*(1,954,182)*
Liabilities in respect of beneficiaries	*(4,023,172)*	*(3,654,634)*
Total Liabilities	*(6,197,671)*	(5,608,816)
Surplus/(Deficit) in the Fund	***(1,994,337)***	**(1,350,171)**
Funding Level using Best Estimate assumptions (%)	**67.8**	**75.9**

The Best Estimate assumptions at 31 December 2018 have been updated from those used at 31 December 2017 as part of the review of the assumptions for the 1 January 2019 Periodic Actuarial Review. The main changes were:

- An update to the discount rate and inflation rate assumptions to reflect the current best estimate of the Fund's risk consultant, Ortec Finance;
- An update to the remuneration increase in excess of inflation assumption which now reflects the future views of CERN and ESO HR;
- An update to the mortality assumption to reflect a recent experience study and a more up-to-date, relevant table; and
- A simplification of the spouses' age gap assumption to better reflect Fund data.

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