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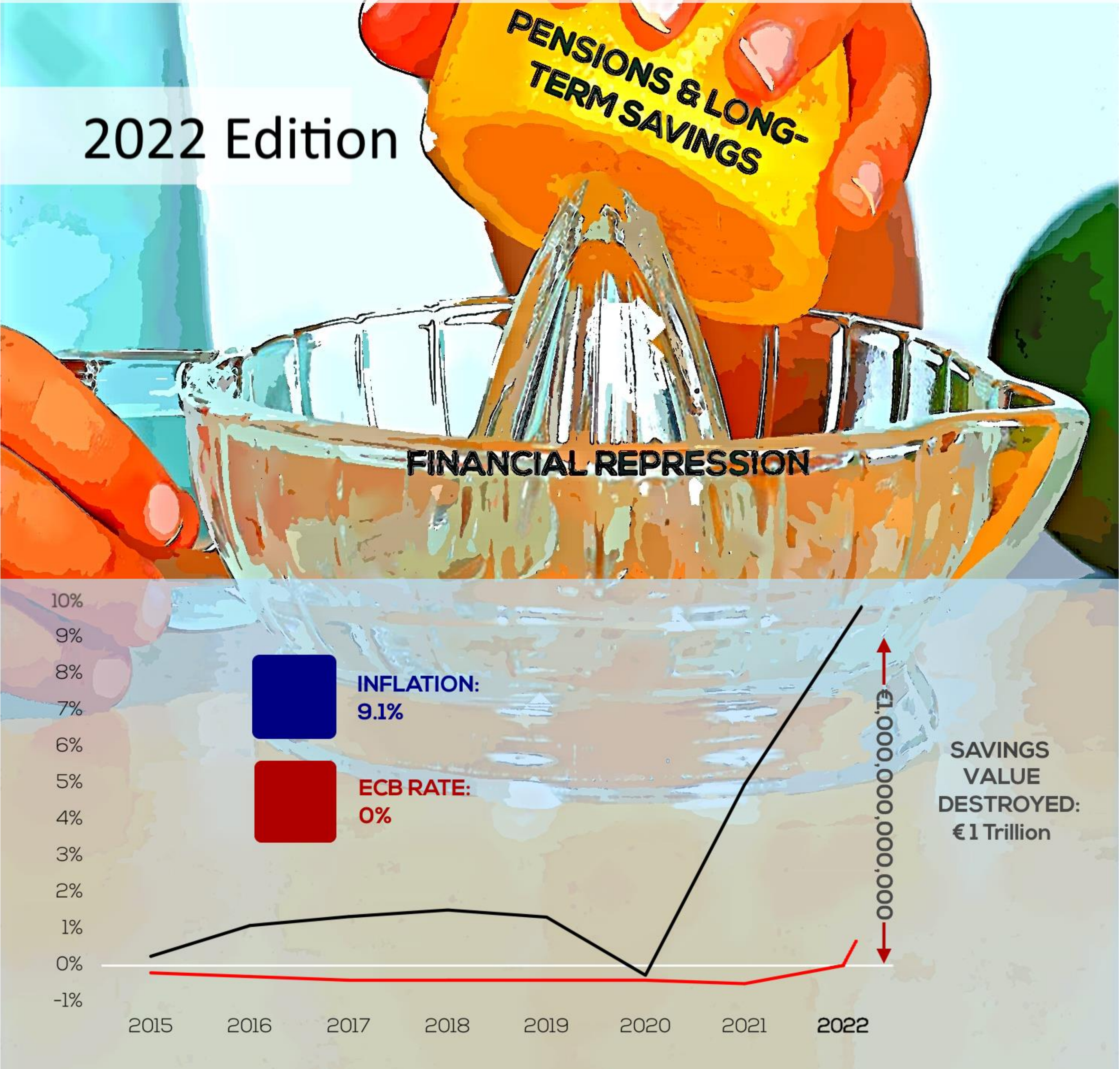
Long-Term & Pension Savings | The Real Return

2022 Edition



Pension Savings: The Real Return

2022 Edition

A Research Report by BETTER FINANCE

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Pension Savings: The Real Return

2022 Edition

Executive Summary

> *"With the two of three worst financial meltdowns of the past hundred years occurring in the past 12 years, can our societies rely on financial markets to deliver decent retirement outcomes for millions around the world?"*[1]

Strong equity returns in 2021 slowed down by inflation, which is here to stay

How much did pension savers earn on average?

In this report, we aim to provide pension comparisons on every front possible. The aggregate summary return tables compare the annual average rates of returns between occupational/collective (Pillar II) pension schemes and between voluntary/individual ones (Pillar III) on 5 periods: 1, 3, 7, 10 years. These standardised periods eliminate inception and market timing biases, allowing to "purely" compare performances between different pension schemes. For information purposes, we also show the average return since data is available (last column).

Aggregate summary return table	Pillar II								
	1 year		3 years		7 years		10 years		max. available*
	2021	2020	2019-2021	2018-2020	2015-2021	2014-2020	2012-2021	2011-2020	
Austria***	3.08%	1.40%	4.12%	1.23%	1.92%	2.35%	2.68%	1.79%	1.56%
Belgium	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Croatia	2.55%	8.06%	3.38%	2.81%	4.76%	4.99%	4.82%	4.10%	3.25%
Denmark	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Estonia	1.30%	7.97%	4.60%	2.10%	1.61%	2.13%	2.35%	1.31%	0.75%
France	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Germany	n.a.	3.53%	n.a.	2.23%	n.a.	2.63%	n.a.	2.46%	2.35%
Italy	1.44%	7.30%	3.96%	1.85%	1.97%	2.81%	3.30%	2.66%	0.86%
Latvia	2.21%	8.43%	4.22%	1.12%	1.15%	1.54%	2.30%	1.45%	0.05%
Lithuania	5.97%	14.92%	8.60%	4.72%	3.95%	4.07%	4.60%	3.52%	1.95%
Netherlands	0.85%	6.23%	6.58%	5.01%	3.84%	5.79%	5.00%	5.26%	2.80%
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Romania	-2,58%	2,59%	1,64%	1,81%	1,23%	2,68%	2,83%	2,95%	2,04%
Slovakia	3.38%	5.37%	3.13%	0.70%	1.59%	1.50%	1.43%	0.79%	0.21%
Spain	1.52%	2.10%	2.25%	2.40%	3.02%	3.86%	2.56%	2.86%	0.86%
Sweden	13.50%	6.45%	17.44%	8.23%	n.a.	n.a.	n.a.	n.a.	10.59%
UK	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

*Source: BETTER FINANCE own composition; *whole reporting period differs between countries; **UPF data used as proxy for Pillar II; ***Pension funds used as proxy for Pillar II, 2021 data is estimated; data for Netherlands Pillar II is only occupational pension funds*

[1] Amin Rajan (Crate Research), 'Coronavirus Crisis Inflicts a Double Blow to Pensions' (FT.com, 15 April 2020) available at: https://www.ft.com/content/bd878891-4f20-46c3-ab23-939162a85d9c.

Voluntary pension products vary in market share based on the jurisdiction: in some cases, insurance-based products are more prevalent, whereas in some countries pension funds are preferred. The table below shows the average real net returns for supplementary pensions by standardised holding periods.

Aggregate summary return table	Pillar III								
	1 year		3 years		7 years		10 years		whole reporting period*
	2021	2020	2019-2021	2018-2020	2015-2021	2014-2020	2012-2021	2011-2020	
Austria*	0.44%	1.27%	0.96%	2.65%	1.29%	3.09%	1.50%	3.30%	1.95%
Belgium	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Croatia	2.00%	-1.41%	2.97%	2.13%	3.48%	4.57%	4.41%	3.75%	3.51%
Denmark	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Estonia	6.30%	4.51%	8.14%	2.37%	3.04%	3.19%	4.00%	2.04%	1.78%
France*	0.37%	1.13%	1.55%	0.65%	1.07%	1.43%	1.63%	1.47%	1.47%
Germany**	-3.72%	2.68%	-0.16%	1.30%	0.64%	1.62%	1.11%	1.64%	1.20%
Italy	1.92%	0.03%	3.04%	1.18%	2.18%	2.58%	3.18%	2.49%	1.91%
Latvia	-1.01%	2.14%	3.18%	0.82%	0.59%	1.75%	2.17%	1.58%	1.34%
Lithuania	0.54%	4.83%	4.65%	2.29%	2.17%	2.85%	3.37%	1.98%	1.03%
Netherlands	-2.29%	1.83%	-0.04%	1.39%	1.19%	1.14%	0.33%	0.27%	0.02%
Poland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Romania	-3,07%	0,99%	0,60%	0,35%	0,22%	1,53%	1,90%	1,91%	-1,00%
Slovakia	1.92%	1.30%	3.03%	0.08%	0.92%	1.00%	1.39%	0.44%	0.71%
Spain	2.10%	0.86%	1.58%	1.33%	2.20%	3.08%	2.26%	1.60%	0.35%
Sweden	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
UK	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

*Source: BETTER FINANCE own composition; *whole reporting period differs between countries; ** Riester pension insurances contracts. Acquisition charges are included and spread over 5 years*

Unfortunately, due to unavailability of data breakdowns, for some country cases (UK, Belgium, Denmark, Poland) we were not able to calculate the annual real average returns by Pillar. Nevertheless, the results by retirement provision vehicle are available in Graphs 19 and Table 20 in the *General Report* and on an annual basis (nominal, net and real net return) in each country case).

Note: For a few pension systems analysed in the report, the data available on retirement provision vehicles clearly distinguishes between Pillar II and Pillar III (such as Romania or Slovakia). In other countries, where pension savings products may be used for both Pillars, the categorisation is more difficult since return data is not separated as such. However, for reasons of simplicity and comparability, the authors of the report have put in all the necessary efforts to correctly assign each product according to the pillar it is, or should be, used for.

Pension Savings: The Real Return

2022 Edition

General Report

One can supervise only what one can measure:
Why is this long-term savings performance report (unfortunately) unique?

I. INTRODUCTION

2022 marks the anniversary edition of BETTER FINANCE's Long-Term and Pension Savings Report. For 10 years, BETTER FINANCE aggregated and updated data and information on pension systems' structure, characteristics, charges, tax, and real net returns in a unique publication in this field.

Our report grew from the initial three country cases (Denmark, France, and Spain) covered in the 2013 report ("Private Pensions: The Real Return"[11]) to reach 18 jurisdictions and true long-term reporting horizons: where available, 22 years of gross, net, and real net returns of private occupational and voluntary retirement provision vehicles.

Today, BETTER FINANCE's research on the real returns of long-term and private pension savings comprises:

- this report (full version);
- the summary booklet;
- the *pensions dashboard*, an interactive tool on BETTER FINANCE's website to view and compare returns between private retirement provision vehicles.

1.1. The actual performance of this market is generally unknown to clients and to public supervisors

This report was built to respond to one of the big problems for the pensions market in the EU: lack of comprehensive and comparable data on real net performances. So far, two other publications also aim to provide transparency on the topic, but have a limited scope and are too general to be useful for the average pension saver:

[11] Link for the print version available here: http://www.betterfinance.eu/fileadmin/user_upload/documents/Research_Reports/en/Pension_Study_EN_website.pdf.

Table GR1. Comparison BETTER FINANCE report with EIOPA/OECD		
	EIOPA	OECD
Private pension products	Only insurance-based pension products (unit-linked and profit-participation) based on surveys (68 providers/17 EU Member States/200 products)	Only pension funds (20 EU jurisdictions)
Distinction between pillars (occupational vs voluntary)	No	No
Time horizon	5 years	15 years max.
Data/information on public pension systems	No	Yes
Pension system description (structure, conditions, costs, taxes)	No	Yes
Asset allocation	No	Yes
Gross returns	No	No
Nominal net returns	Yes	Yes
Real net returns	Yes	Yes
Real net returns, after tax	No	No

Source: BETTER FINANCE own research

Our report closes this informational gap for pension savers in 17 EU Member States. This is in line with the European Commission's "Action" to improve the transparency of performance and fees in this area (as part of its Capital Markets Union – CMU - Action Plan) and it corresponds with the current tasks of EIOPA in the area of personal pension products with respect to past performance and costs comparison.[12]

It is the ambition and challenge of this research initiated by BETTER FINANCE and its partners to collect, analyse and report on the actual past performance of **all** long-term and pension savings products.

Reporting the real net return[13] of pension saving products should be:

- the long-term return (at least covering two full economic and stock market cycles, since even long-term returns are very sensitive to entry and exit dates);
- net of all fees, commissions and charges borne directly or indirectly by the customer;

[12] The European Supervisory Authorities (ESAs) have a legal duty to collect, analyse and report data on "consumer trends" in their respective fields (Article 9(1) of the European Regulations establishing the three ESAs).

[13] A limitation of the present report is that it does not take into account real estate as an asset for retirement. The proportion of households owning their residences varies greatly from one country to another. For example, it is especially low in Germany, where a majority of households rent their residences and where home loan and savings contracts have consequently been introduced as the most recent state-subsidised pension savings scheme. For the time being, returns on pension savings are all the more important since a majority of retirees cannot rely on their residential property to ensure a decent minimum standard of life. However, residential property is not necessarily the best asset for retirement: indeed, it is an illiquid asset, and it often does not fit the needs of the elderly in the absence of a broad use of reverse mortgages. The house might become too large or unsuitable in case of dependency. In that case, financial assets might be preferable, on the condition that they provide a good performance.

- net of inflation (since for long-term products only the real return matters; that is the right approach taken by OECD as mentioned above);
- when possible, net of taxes borne by the customer (in the USA it has been mandatory for decades to disclose the past performance of mutual funds after tax in the summary of the prospectus).

Table GR2. BETTER FINANCE report structure and scope	
Structure	1. Executive summary 2. General report (overview of data and findings) 3. Individual country cases (Austria, Belgium, Bulgaria, Croatia, Denmark, Estonia, France, Germany, Italy, Latvia, Lithuania, Poland, the Netherlands, Romania, Slovakia, Spain, Sweden, UK until 2019), representing 87% of EU27 population
Time horizons	22 years (December 1999 – December 2021) or maximum available
Products covered	1. Occupational pension pillar (pension funds, insurance-based pension products, other defined-benefit/contribution vehicles) 2. Voluntary pension pillar (pension funds, insurance-based pension products)
Public pensions	Structure, coverage, funding type, entry/pay-out conditions
Occupational pensions	Architecture (types of products offered), coverage, assets and/or asset allocation, costs, applicable tax regime(s)
Voluntary (individual pensions)	Architecture (types of products offered), coverage, assets and/or asset allocation, costs, applicable tax regime(s)
Returns	1. Gross returns (before costs, tax, and inflation – where available) 2. Nominal net returns (before tax and inflation – where available) 3. Real net returns, before tax, inflation deducted 4. Real net returns, after tax (where available)
Data sources	Publicly available data and information sources

We have chosen a period starting from 31 December 1999 because pension savings returns should be measured over a long-term horizon, and because it includes two market upturns (2003-2006 and 2009-2019) and two downturns (post dot com bubble of 2001-2003 and the 2008 financial crisis).

1.2. Information on the returns of long term and pension savings is deteriorating

This report shows that it is not an impossible, but a very challenging task for an independent expert centre such as BETTER FINANCE to collect the data necessary for this report since quite a lot of data are simply not available at an aggregate and country level, especially for earlier years. The complexity of the taxation of pension savings in EU countries makes it also extremely difficult to compute after tax returns.

Once more, for 2021, we find that information on long-term and pension savings returns is actually not improving but on the contrary deteriorating:

- ***Insufficient information***: for example the Belgian insurance trade organisation Assuralia no longer reports the returns of insurance-regulated « Branch 21 » occupational and personal pension products since 2014, and the national supervisor FSMA does not do it either; in Bulgaria, the necessary data for Professional Pension Funds (pillar II and III) is no longer available since 2018 and the transfers to Pillar I (data from NSSI) are not disclosed; in the UK, the survey conducted by the Department for Statistics has been discontinued and information on British pension funds stopped at 2017;
- ***Late information***: at the time of printing, still a lot of 2021 return data have not been released by the national trade organisations or other providers. OECD has published preliminary data for December 2021, but on a limited number of jurisdictions and only for pension funds; moreover, considering that, in many countries, pension funds are not the most popular vehicle, this constitutes a large information gap.
- ***Unchecked information***: the principal source remains the national trade organisations, their methodology is most often not disclosed, return data do not seem to be checked or audited by any independent party, and sometimes they are only based on sample surveys covering just a portion of the products.

Moreover, savvy retail savers and EU public authorities must rely on private databases (and divergent methodologies) to learn some of the costs and performances of "retail" saving products. This is because the PRIIPs Key Information Document (KID) eliminated pre-contractual disclosure of past performance and actual costs for UCITS and requires return and cost estimations instead for all "retail" investment products, including pension products. This severe setback in transparency and comparability is completely inconsistent with the CMU initiative. Four high-level initiatives have struggled to repair this situation, without success: the NextCMU Report, the High-Level Forum Final Report, the ECON CMU Report and the ESAs' draft RTS on PRIIPs Level 2. BETTER FINANCE continues to deplore the content of the PRIIPs KID.

2. Value for Money: how to achieve pension adequacy?

Public pension authorities typically stress two requisites to achieve "pension adequacy":

a) the need to start saving as early as possible;
b) the need to save a significant portion of one's income before retirement activity income: "*to support a reasonable level of income in retirement, 10% - 15% of an average annual salary needs to be saved*".[14]

BETTER FINANCE continues to disagree: saving earlier and more is not enough. A third and even more important factor is the need to deliver positive and decent long-term **real net** return (i.e., net of inflation and fees). A simple example will illustrate why:

[14] World Economic Forum White Paper: 'We'll live to 100 – How can we afford it?' May 2017

Assuming no inflation and saving 10% of activity income for 30 years,[15] the table below shows that **unless long-term net returns are significantly positive** (in the upper single digits), **saving early and significantly will not provide a decent pension.**

Annual net return	Replacement income
negative 1%	10%
Zero	12%
2%	17%
8%	49%

Moreover, in light of the special analysis undertaken in this report on *financial repression*, savers must also be aware and take into account the effects of ***inflation***, particularly since currently it reaches historical records.

What is pension adequacy?

This question ultimately revolves around the level of retirement income (pension) compared to the pre-retirement income. The EU defines *pension adequacy* indirectly through three objectives that a pension system should achieve:

1) **income replacement**: ensure a minimum standard of living at retirement,
2) **sustainability**: ensure that the public pension system is sustainable; and
3) **transparency**: inform workers about the need to plan for their retirement.[16]

On income replacement, the EU's Open Method of Coordination on Social Protection and Social Inclusion[17] further specifies that pensions should:

- *in general*, be at a certain level so that the standards of living pre-retirement are maintained, to "*the greatest possible extent*", after retirement;
- *for special cases*, ensure a minimum standard of living at retirement so as to avoid pension poverty.

To measure the two above objectives, two indicators are generally used: the *aggregate replacement ratio*,[18] showing how big the gross pension is compared to the salary, and the

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[15] As recommended by Public Authorities assuming 25-year life expectancy at retirement, gross of fees and taxes.

[16] Directorate-General for Employment, Social Affairs and Inclusion of the European Commission and the Social Protection Committee, *Pension Adequacy in the European Union 2010-2050* (May 2021) European Commission, available at: file:///C:/Users/Stefan/Downloads/pension%20adequacy%20in%20the%20european%20union%202010-2050-KE3012757ENN.pdf.

[17] See Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - "*A renewed commitment to social Europe: Reinforcing the Open Method of Coordination for Social Protection and Social Inclusion*" {SEC(2008) 2153} {SEC(2008) 2169} {SEC(2008) 2170} {SEC(2008) 2179}, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52008DC0418.

[18] According to Eurostat, the *aggregate replacement ratio* is the ratio of the median individual gross pensions of 65-74 age category relative to median individual gross earnings of 50-59 age category, excluding other social benefits.

theoretical replacement rate, showing the instant change (drop/increase) in income when retiring from active life:

$$Aggregate\ replacement\ ratio = \frac{gross\ median\ pension\ (pop.aged\ 65-74\ yo)}{gross\ median\ income\ (pop.aged\ 50-59\ yo)}$$

$$Theoretical\ replacement\ ratio = \frac{pension\ in\ the\ first\ year\ of\ retirement}{income\ in\ the\ last\ year\ of\ work}$$

The International Labour Organisation obliges parties to the Treaty to guarantee a minimum 40% of the previous earnings (prior to retirement) after 30 years of contributions;[19] the same threshold is used by the European Code of Social Security.[20] However, an actual threshold for pension adequacy was never agreed, although EU Member States agree on its objectives (to prevent old-age poverty, to replace income at a rate to *maintain* the standard of living, to be sustainable).

The reality is that pension adequacy[21] comprises two additional components, besides the actual *pension vs salary* ratio:

- the time spent to earn the pension vs the time spent receiving it;
- the amount of contributions to pension provision, namely mandatory (State) schemes and voluntary (occupational/individual) ones; put simply, *pension savings*.

To achieve *pension adequacy*, retirement benefits altogether (State and private pensions) should amount to at least 70%-80% of late working life gross salary.

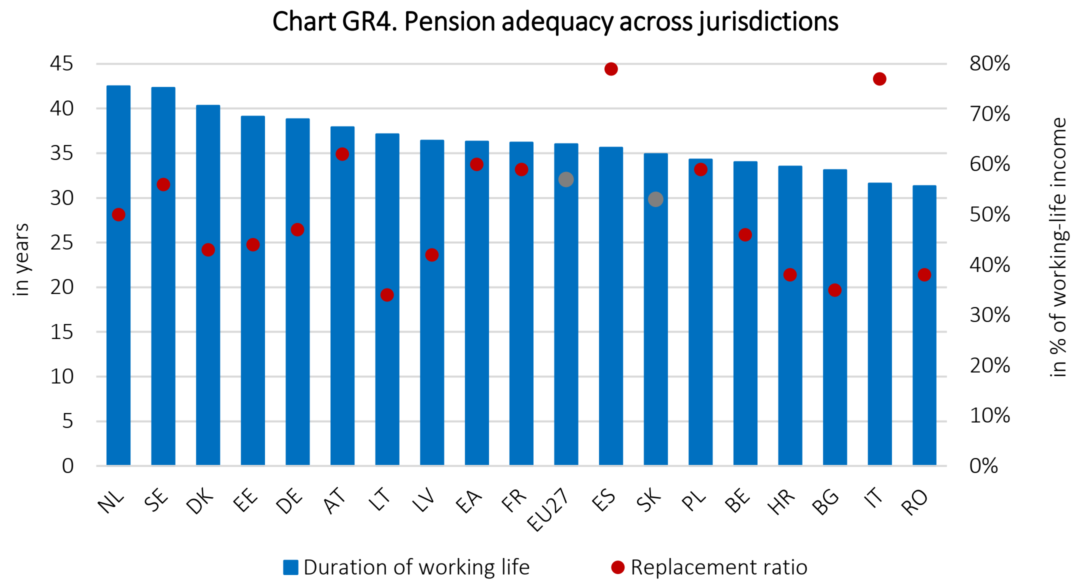
Currently, the aggregate replacement rate (mostly State pension) is very low across the countries in scope of our report: fourteen out of seventeen jurisdictions provide a replacement rate lower than 60% for over more than 30 years of working life.

The indicator is based on the EU-SILC (statistics on income, social inclusion and living conditions) – See Eurostat, *Aggregate Replacement Ratio for Pensions (excluding other social benefits) by sex*, available at: https://ec.europa.eu/eurostat/databrowser/view/tespn070/default/table?lang=en.

[19] Art. 67 of Convention C102 on Social Security (Minimum Standards) of the International Labour Organisation, available at: https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C102; Art. 29 of the later adopted Convention C128 on Invalidity, Old-Age and Survivors' Benefits Convention of the International Labour Organisation (available here: https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:55:0::NO::P55_TYPE,P55_LANG,P55_DOCUMENT,P55_NODE:CON,en,C128,/Document) required a higher threshold, i.e. 45%.

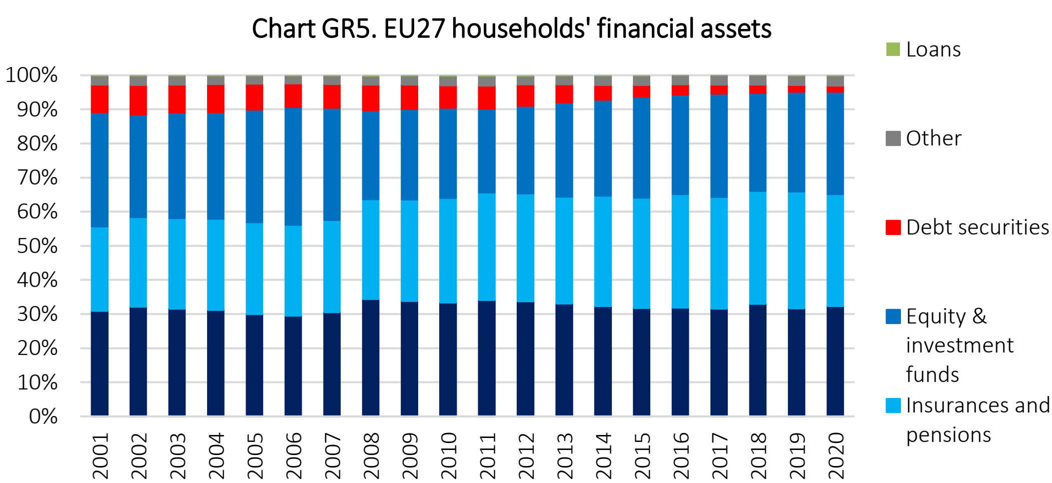
[20] Art. 67, Schedule to Part XI, of the European Code of Social Security, available at: https://rm.coe.int/168006b65e.

[21] Here we take only the financial point of view, but there are several other factors (non-financial) that contribute to "*maintaining the standard of life at retirement*", such as home ownership, sources of income, employment opportunities and access to non-financial benefits – see European Commission, *European Semester Thematic Factsheet: Adequacy and Sustainability of Pensions* (2017) European Commission, p. 3, available at: https://ec.europa.eu/info/sites/default/files/file_import/european-semester_thematic-factsheet_adequacy-sustainability-pensions_en_0.pdf.



Source: own composition based on Eurostar data; *EU27 replacement ratio corresponds to 2019; Slovakia replacement ratio corresponds to 2020

There has been a shift from the full reliance on the public scheme of redistribution (tax-funded defined-benefit) to a more capital markets reliant system, where the main pension income stream should come from private pension products. Pension performances are subject to inflation and to tax, which eat into the retirement pot.



Source: BETTER FINANCE based on Eurostat data

Our findings clearly confirm that capital market performances have unfortunately very little to do with the performances of the actual savings products distributed to EU citizens. This is particularly true for long-term and pension savings. The main reason is the fact that most EU citizens do not invest the majority of their savings directly into capital market products (such as equities and bonds), but into "packaged products" (such as investment funds, life insurance contracts and pension products).

3. Performance: capital markets are not a proxy for retail investments

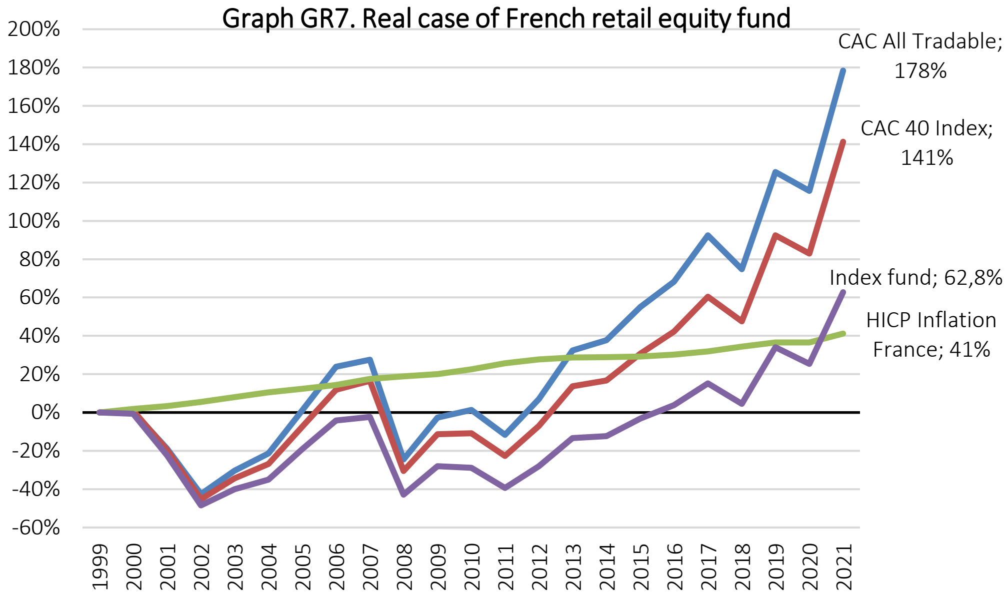
One could then argue that insurance and pension products have similar returns to a mixed portfolio of equities and bonds, since those are indeed the main underlying investment components of insurance and pension "packaged" products. However, this is not true as the share of packaged products and debt instruments are dominant in most pension portfolios. Realities such as fees and commissions, portfolio turnover rates, manager's risks, etc., invalidate this approach.

Table GR3 and Graph GR4 below show two striking – but unfortunately not uncommon – real examples of this largely ignored reality: capital market performance is not a valid proxy for retail investment performance and the main reasons for this are the fees and commissions charged directly or indirectly to retail customers. The European Commission itself publicly stressed this fact (see footnote 2 above).

Table GR6. Real case of a Belgian life insurance (branch 23)	
Capital markets vs. Belgian individual pension insurance 2000-2021 performance	
Capital markets (benchmark index*) performance	
Nominal performance	288%
Real performance (before tax)	183%
Pension insurance performance (same benchmark)	
Nominal performance	182%
Real performance (before tax)	116%

*Source: Sources: BETTER FINANCE own computations based on Morningstar public website; *Benchmark is composed of 50% bonds (LP06TREU) and 50% STOXX All Europe Total Market Return*

The real case above illustrates a unit-linked life insurance product (Pillar III in Belgium). The pension product's nominal return amounted to less than two thirds of its corresponding capital market benchmark's return.



Source: Own elaboration based on Graph FR3 in the French chapter

The real case above illustrates an investment fund domiciled in France, a so-called retail CAC 40 "index" fund.[22] The fund actually underperformed the relevant equity index by 78.5 p.p. after 22 years of existence (1.85% per year), with the performance gap fully attributable to fees. The fund has also massively destroyed the real value of its clients' savings, as inflation has been almost twice as high as its nominal performance. It is quite surprising that with such a huge return gap vis-à-vis its benchmark, this fund is still allowed to portray itself as an "index-tracking" one, and that no warning is to be found on the Key Information Document (KIID) of the fund.

4. European Pension returns outlook

Our research findings show that most long-term and pension savings products did not, on average, overperform a broad capital markets index (balanced 50% equity – 50% bond), and in one too many cases even destroying the real value for European pension savers (i.e., provided a negative return after inflation). Based on our calculations and available data, 37 out of the 41 retirement provision vehicles analysed underperformed European capital markets by an average 1.93% per year. Moreover, three out of these 37 even delivered real negative performances over long-term periods (between 15 and 22 years).

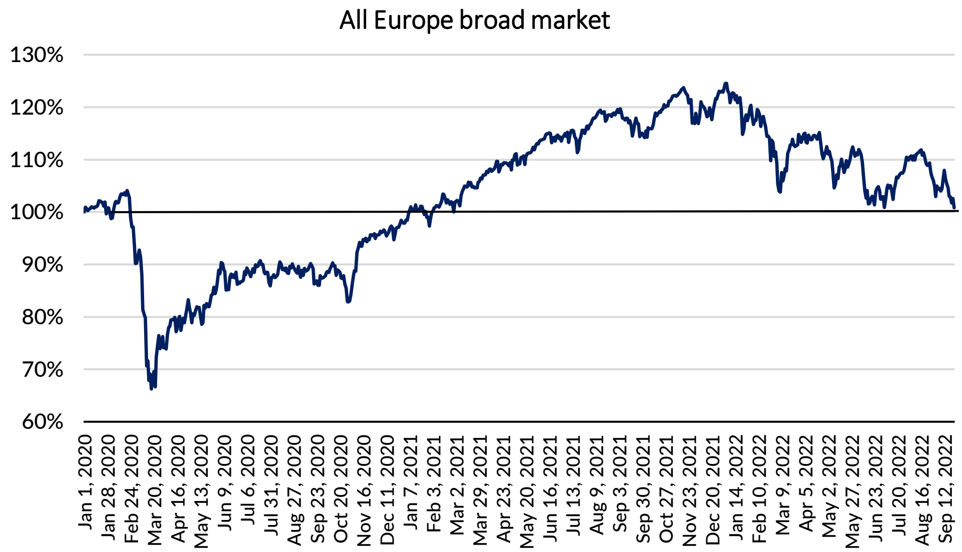
At the time of writing, the overall mid-term outlook for the adequacy of European pension savings is worrying when one analyses it for each of these main return drivers:

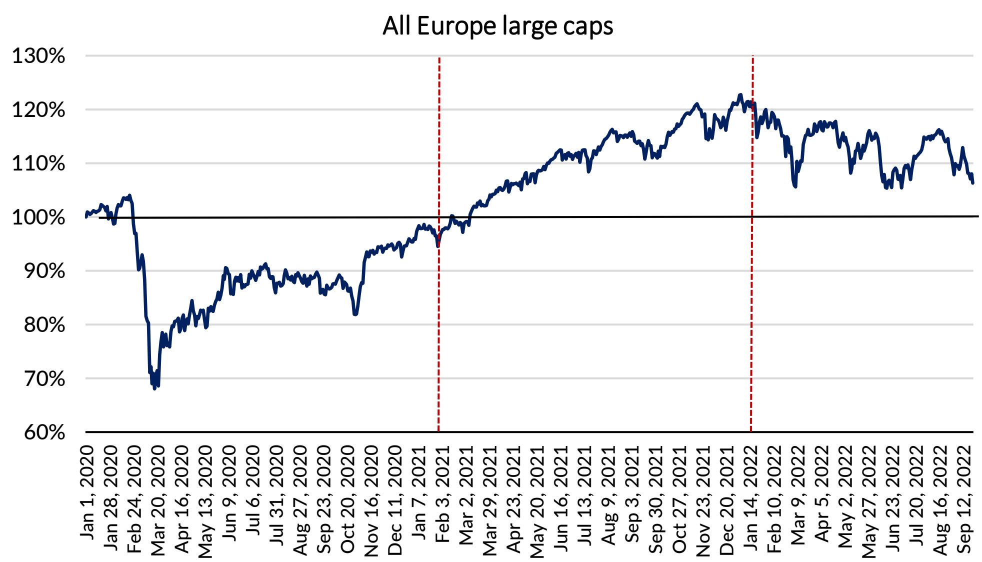
a) it is unlikely that the European bond markets will come any closer to the extraordinary returns of the period ended in 2020 for bonds due to the continuous

[22] Wrapped in an insurance contract as suggested by the distributor.

fall of interest rates, currently at rock-bottom levels; moreover, the reversal of quantitative easing programmes of Eurozone central banks will further affect the returns on sovereign bonds; the negative impact of this foreseeable trend in bond returns on pensions' returns will be reinforced by a higher proportion of bonds in pension products' portfolios in recent years; this is all the more relevant due to monetary policy response to the health-generated recession;

b) the strong growth of equities in 2020 and 2021 is already reverting, with the European all country broad equity index reaching pre-2020 levels and the large caps market also close by;

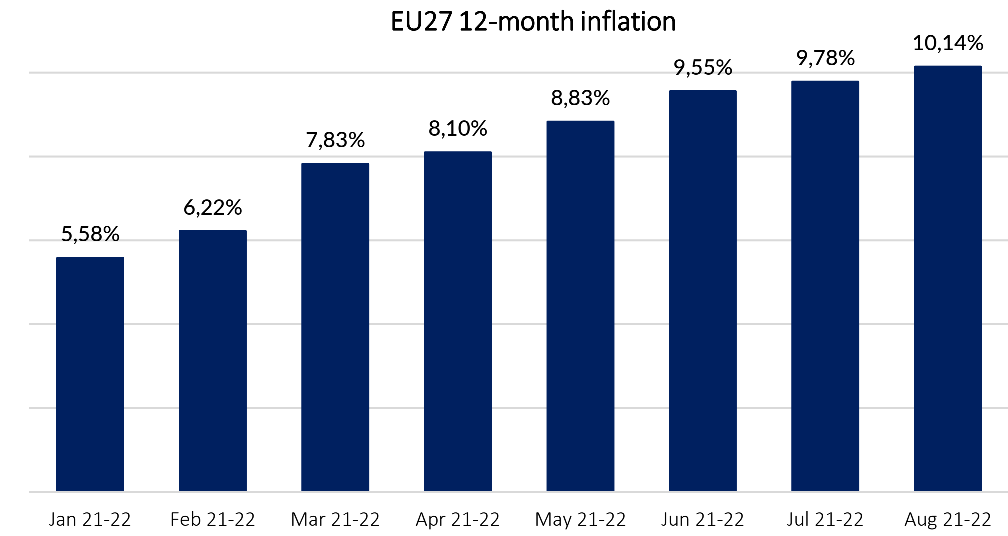


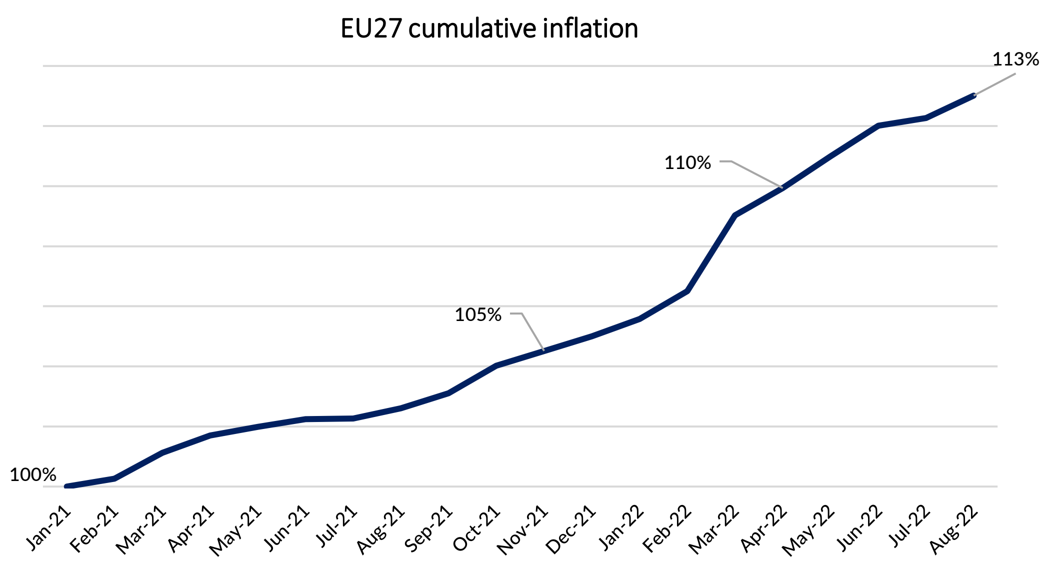


Source: Own composition based on MSCI data

c) costs and charges, as far as our data indicates, are not significantly improving;

d) inflation already took a heavy toll on pension returns in 2021 and it will be much, much stronger in 2022 due to record rates;





Source: Own composition based on Eurostat data

e) Taxes on long-term and pension savings do not show any significant downward trend either.

Pension Savings: The Real Return

2022 Edition

Country Case: Estonia

Kokkuvõte

Eesti pensionisüsteem on tüüpiline Maailmapanga mitmesambaline süsteem, mis põhineb personaalsetel pensionikontodel. Aastat 2021 ilmestasid kerkivad aktsiaturud ja kiirenev hinnatõus, eriti aasta teises pooles. Teise samba fondide kaalutud keskmine tootlus oli nominaalselt 13,33% ja kolmanda samba sama näitaja oli 18,34%. Tulenevalt tarbijahindade kiirest tõusust 2021. aasta lõpus, kujunes teise samba fondide inflatsiooniga korrigeeritud reaaltootluseks 1,3%. Kolmanda samba reaal-tootlus oli 6,3%.

Teise samba fondide pikaajaline kaalutud keskmine reaaltootlus aastatel 2003-2021 oli 0,75% aastas. Kolmanda samba fondide puhul oli see näitaja samal perioodil 1,78% aastas.

Alates 2016. aasta lõpust on Eesti turule lisandunud mitmeid madalate tasudega passiivselt juhitud pensionfonde (nn. indeksfonde), mis on kiirelt võitnud kliente ja suurendanud turuosa. Madalate tasudega fondide lisandumine turule on sundinud fondivalitsejaid ka teiste fondide tasusid alandama. Nüüdseks pakuvad kõik Eestis tegutsevad pensionifondide valitsejad oma valikus vähemalt üht indeksfondi.

Aastal 2020 jõustunud vastuoluline pensionireform muutis Eesti II pensionsamba vabatahtlikuks ja võimaldas pensionkogujatel oma II samba säästud enne pensioniiga reliseerida. Selle tulemusena lunastati 2021. aasta septembris ja 2022. aasta alguses ligi veerand II sambasse kogunenud pensionivarast.

Lisaks tundub käesoleva raporti kirjutamise seisuga, et 2022 võib kujuneda pensionivara ostujõu siesukohalt võrreldavaks 2008. aasta krahhiga. Põhjuseks nii langevad aktsiaturud kui kiire inflatsioon.

Need kaks hiljutist arengut panevad suure küsimärgi alla Eesti praeguse pensionisüsteemi võimekuse tagada Eesti tänastele töötajatele adekvaatne sissetulek pensionieas.

Summary

The Estonian Pension system is a typical World Bank multi-pillar (three-pillar system) based on individual (personal) pension savings accounts. 2021 saw on average high nominal returns for both the second and third pension pillars, with Pillar II recording average returns of 13.33% and Pillar III funds averaging returns of 18.34%. After adjusting for inflation, which was the

highest it had been in decades, the real returns were: 1.3% for Pillar II funds and 6.3% for Pillar III funds. This meant that the long-term (since 2003) real returns of Pillar II funds ultimately stayed positive, albeit low, at an asset-weighted average real return since inception of 0.75%, while Pillar III funds have achieved a more respectable average real return of 1.78% over the same period.

Low-cost passively managed pension funds introduced since 2016 have forced providers to further decrease the fees charged in Pillar II as well as Pillar III pension funds, with all pension fund providers offering at least one low-cost passive fund as part of their range by mid-2021.

The year 2021 also saw almost a quarter of all pension savings withdrawn from the II pillar, after a controversial change to the pension system from the year before was implemented

Looking forward to 2022, a combination of galloping inflation and falling stock markets look likely to make it the worst year for pension savers in Estonia since the global stock market crash of 2008.

These two factors mentioned above present a huge challenge to policymakers if they wish to find ways to ensure current workers in Estonia will have adequate pensions when they retire.

Introduction

The Estonian old-age pension system is also based on the World Bank multi-pillar approach, which consists of three main pillars:

- Pillar I – State pension organised as a mandatory Pay-As-You-Go (PAYG) scheme;
- Pillar II – Funded pension, which was previously organised as a mandatory funded defined contribution (DC) scheme, starting from January 1, 2021, it has been possible to opt-out of the II pillar funded pensions scheme;
- Pillar III – Supplementary pension organised as a voluntary individual pension scheme.

The Estonian multi-pillar pension reform began in 1998 with the introduction of the third (voluntary) pension pillar in legislation. The formerly mandatory second pillar, which finances individual private retirement accounts with matching contributions from workers and the government, was introduced in 2001 and became operational on July 1, 2002. It became possible to opt-out of the second pillar pension and to liquidate any previous savings held under it, from January 1, 2021.

Table EE1. The multi-pillar pension system in Estonia		
Pillar I State Pension	**Pillar II** Funded pension	**Pillar III** Supplementary pension
Mandatory	Formerly mandatory, possible to opt-out from 2021 onwards	Voluntary
PAYG	Funded	Funded
Financed by social tax	Defined Contribution	Defined Contribution
Benefits paid via State Pension Insurance Fund	Basic benefit	Complementary benefit
Minimum pension + employment related	Individual pension accounts	Individual pension contracts
Publicly managed by Social Insurance Board (government entity)	Either privately managed pension funds or personally managed pensions savings through an individual pension savings account	Two vehicles: 1. Privately managed pension funds 2. Pension insurance

Source: BETTER FINANCE own elaboration, 2022

In 2020, the basic pension system (not counting optional saving instruments) generated an average salary replacement ratio 2020 of only 28% in gross terms. % (data according to OECD bi-annual pension survey from 2021[79]). The replacement rate is calculated by taking the average expected first pillar old-age pension for a person having a full career from age 22 until retirement age and dividing it with the average salary in Estonia. The expected after-tax replacement rate is only slightly better, at 33.8% (Ibid). Both figures are the second worst in the OECD and EU, with only the Lithuanian pension system guaranteeing a lower. For comparison, among EU countries, the average expected replacement rate is 54.3% gross and 67.6% after-tax.

Compared to the previous OECD study, based on 2018 data, both gross and after-tax replacement rates dropped approximately 20%, mainly due to the 2nd becoming optional (Ibid). After the drop, the expected retirement income for a person with no optional savings is well below the relative poverty rate[80]. This highlights the significant old-age poverty risks posed by the recent pension reform, which effectively made the 2nd pillar optional.

While it may be argued that giving more control of the level and instruments of long-term and retirement savings to individuals is a good thing, from the perspective of freedom of choice, it poses the risk that a significant part of the population will discover too late that their pension savings are inadequate. It's critical that the relevant authorities take sufficient measures to

[79] OECD 2021 survey https://data.oecd.org/pension/gross-pension-replacement-rates.htm#indicator-chart
[80] Own calculation, based on Statistics Estonia data for 2020 https://www.stat.ee/en/find-statistics/statistics-theme/well-being/social-exclusion-and-poverty/risk-poverty-rate

inform the population that relying only on the first pillar pension will inevitably result in relative poverty upon retirement.

The authorities also need to consider that as the population ages, a large percentage of pensioners and people close to pension age being at risk of poverty might create irresistible political pressure to rapidly increase the funding for the first pillar. In the context of what is likely to be a very old population, this would put the sustainability of state finances in jeopardy.

Table EE2. Summary returns table - Estonia

	Pillar II		Pillar III	
	Nominal	Real	Nominal	Real
1-year (2021)	13,33%	1,30%	18,34%	6,30%
3-years (2019-2021)	8,88%	4,60%	12,34%	8,14%
5-year (2017-2021	5,49%	1,52%	7,05%	3,12%
7-year (2015-2021)	4,75%	1,61%	6,11%	3,01%
10-years (2012-2021)	5,12%	2,35%	6,75%	4,00%
Since inception (2003-2021)	4,44%	0,75%	5,60%	1,78%

Source: BETTER FINANCE own composition based on Pensionikeskus.ee data, 2022 (data as of 31.12.2021)

Pillar I – State Pension

The coverage ratio of Pillar I pensions comprises nearly 100% of the economically active population.

The state pension (Pillar I) should guarantee the minimum income necessary for subsistence after retirement. It is based on the Pay-As-You-Go (PAYG) principle of redistribution, i.e., the social taxes paid by today's employees cover the pensions of today's pensioners.

Legislatively, the state pension is governed by the State Pension Insurance Act. The act is part of the pension system reform, which came into force on January 1, 2002. Since then, the act has been amended more than 30 times. Employers pay 33% of the salary of each employee as social tax, 13% of which is for health insurance, and 20% (16% in case of participation in Pillar II) is for the pensions of today's pensioners.

There are two kinds of state pension: the pensions that depend on work contributions (the old-age pension, the pension for work incapacity and the survivor's pension) and the national pension. Estonians are entitled to the state old-age pension if they have been employed for at least 15 years in Estonia. If the period of employment is shorter, they are not entitled to the old-age state pension and might fall under the national pension system.

The **national pension** (also called National Pension Rate – NPR) provides a minimum pension for those who are not entitled to a pension that depends on work contributions, provided that they have lived in Estonia for at least five years before applying for a pension. The amount of the national pension as of April 1, 2022 (Social Insurance Board, 2022) is €275.37 (up from

€255,18 in 2021)[81]. Generally, no additional benefits are provided via the state pension scheme.

The old-age pension, available for those who contributed for 15 years or longer, takes into account the solidarity part (national pension) plus the work and salary-related part. The old-age pension financed through Pillar I is calculated as a sum of two components:

1. Basic amount (equalling to €255.76)[82];
2. Salary based amount calculated as a multiplication of two factors:
    - Pensionable service period;
    - Insurance contributions.

The basic amount, acting as a first component of the state pension, is aimed at achieving basic solidarity and a minimum pension. The solidarity state pension insurance is represented by the basic amount (base component) of a pension which is equal to all, irrespective of the person's salary.

The factor "pensionable service" period represents the part of the state pension which depends on the length of employment (i.e., years of employment and years deemed equal to employment, e.g., raising of children, compulsory military service, full-time studies, etc.) of the pensioner, which entitles him or her to the pension. The period of pensionable service is taken into account up until December 31, 1998. The monetary value of one year of employment in a monthly pension is €7.718 since April 1, 2022 (Social Insurance Board of Estonia, 2022)[3]. This part of the state pension is deemed to diminish in future years (temporary component) as the third component (insurance contributions) will account for a larger portion of the total state pension amount.

The factor "insurance contributions" depends on how much social tax has been paid on the salary of the pensioner since January 1, 1999. The amount of the insurance component is calculated based on the sum of annual factors of pension insurance. An annual factor shows the ratio of the social tax paid on the person's salary during the calendar year to the social tax paid on the average salary of the state. If social tax is paid on the average salary, the annual factor is 1.0 and its monetary value in a monthly pension is €7,718 (since April 1, 2021), the same as the pensionable service period component.

Change in the formula from 2021.

As part of the overall reform of the pensions system, the insurance component has been replaced by a new "combined component" from January 1, 2021. The combined component is calculated based on the previously described insurance component (which will make up 50% of the new combined component), and 50% will be based on a "solidarity component". The

[81] Estonian Social Insurance Board: www.sotsiaalkindlustusamet.ee/en/pension-benefits/pension-types-pensions-and-benefits
[82] Estonian Social Insurance Boar: https://www.sotsiaalkindlustusamet.ee/en/pension-benefits/pension-calculation

solidarity component is calculated based on an annual factor linked to the minimum wage. If a person earns at least the minimum annual salary in one year, this factor is 1.0. If they earn less than the annual minimum salary, the factor is reduced proportionally. After adding up the two factors, they are in turn divided by two so to obtain the final value. This change is intended to increase solidarity in the system.

The solidarity principle of public pension insurance involves a mechanism for redistributing income from high earners to low earners. However, the base component of a pension is equal for all, irrespective of the person's salary, while the law also procures the minimum amount of the old-age pension regardless of the social tax paid.

The **statutory retirement age** in 2022 is 64 years for both men and women. On April 7, 2010, the Estonian Parliament adopted the Act to amend the State Pension Insurance Act[83] and related acts, establishing that the general pensionable age of 65 years is to be reached in 2026. The transition period (starting from 2017) applies to people who were born from 1954 to 1960. For the latter, the retirement age will be gradually increased by 3 months for every year of birth and will reach the age of 65 in 2026. The amendment came into effect on January 1, 2017. Further increases in the retirement age after 2026 will be, by law,[84] automatically linked to increases in life expectancy. From 2027 onwards, any increases to the average life expectancy at age 65 compared to the baseline period of 2018-2022[85] will lead to an increase in retirement age. However, the increase in the statutory retirement age will be capped to a maximum of 3 months per year.

Indexation of state pensions is performed by the Social Insurance Board with the aim to adjust the level of state pensions, so they correspond to the development of the cost of living and receipt of social tax (growth of the salary fund). Once a year (April 1 of each year), pensions are multiplied by an index which is 20% dependent on the change in the consumer price index (cost of living) and 80% annual increase in the social tax collected (linked to labour market conditions). The indexation introduced in 2002 was up until 2008 equally weighted (50% / 50%) on increases in consumers' price index and social tax contributions. This was changed in 2007 to today's 20% and 80%, respectively. According to the Pension Insurance Act, the Government of Estonia has to analyse the impact of the increase in pensions on financial and social sustainability and suggest every five years to Parliament any need for indexation change.

[83] Legal text of the State Pension Insurance Act: www.riigiteataja.ee/en/eli/ee/Riigikogu/act/530042020004/
[84] Legal text (in Estonian): www.riigiteataja.ee/akt/103012019001
[85] Technically, the formula will compare the average life expectancy at 65 for the 5-year period that is 4-8 years before the year for which the pension age is being calculated with the life expectancy at 65 for the five years between 2018-2022.

The average monthly old-age pension in the second quarter of 2022 was €599.9 (compared to €557.2 the year before, in total, the average pension has increased approx. 90% in the previous ten years)[86].

Pillar II – Funded pension

Both the funded pension and supplementary funded pension put a person in charge of their own future; the amount of their pension will depend on how much they put aside for retirement during their working life. The funded pension is legislated by the Funded Pensions Act, which came into force on May 1, 2004, and replaced the Funded Pension Act, effective October 1, 2001. The funded pension pillar (Pillar II) started its operation in July 2002.

The funded pension is based on the accumulation of assets (savings) – a working person saves for their pension, paying 2% of the gross salary to the selected pension fund. In addition to the 2% that is paid by the individual, the state adds 4% out of the current social tax that is paid by the employee and retains 29% (out of 33%). The insurance element of the state pension of a person who has subscribed to the funded pension is also lower respectively (for the years in which one receives 16% for the state pension instead of 20%).

Subscription to the funded pension was compulsory for those born in 1983 or later, but it has become voluntary starting January 1, 2021. The funded pension has always been voluntary for those born between 1942 and 1983. For these people, subscription was possible in seven years; from May 1, 2001, until October 31, 2010. From January 1, 2021, all persons born in 1970 or later, who are not already subscribed to the II pillar pensions, will be able to apply to subscribe to pillar II pensions. Persons who have previously unsubscribed may re-apply after at least ten years from the date when they were unsubscribed.

All persons who have turned 18 years old will be auto enrolled into the II pillar on the year after they turn 18, unless they make an application for exemption. In the case of auto-enrolment, the person will be randomly drawn a pension fund from among the three pension funds with the lowest current fees at that time and which invest at least 75% of assets in shares, equity funds and other equity-like instruments.

Each Pillar II participant has his/her own individual pension account that records contributions and accumulated savings. A pension account is a special type of securities account in which there are only units of pension funds and data related to these units, as well as data about the unitholder.

In response to the impact of the 2008-2009 financial crisis on the Estonian economy, a temporary change of contributions' regime was adopted, which suspended contributions for the period from June 1, 2009, to December 31, 2010. Interested persons were able to

[86] Own calculation based on data from Statistics Estonia: https://andmed.stat.ee/et/stat/sotsiaalelu__sotsiaalne-kaitse__sotsiaalkindlustus__pensionikindlustus/SK153

continue to make contributions to their funded pension themselves upon request from 2010. From 2011, contributions continued in half-volume, i.e., the state contributed 2% and the savers themselves 1%. Customary contributions to Pillar II (2% - 4%) were restored in 2012. There was a special mechanism for Pillar II contributions between 2014 – 2017. To those who voluntarily continued their contributions in 2010 and 2011, the state shall pay an additional 6% during 2014 – 2017 in order to promote personal saving in Pillar II. However, if a saver did not contribute himself in 2010 and 2011 and submitted an application in 2013, they were required to pay voluntary contributions of 3% of their salary between 2014–2017. For those savers that did, the state contributed an additional 6% during those four years. In 2018, the contribution mechanism returned to 2% - 4% in all cases.

A similar temporary measure was introduced in April 2020 as a result of the COVID-19 crisis and its effects on the state budget as well as the overall economy[87]. The state contribution of 4% was suspended from July 1, 2020, until August 31, 2021. For those who voluntarily choose to continue with the personal 2% part to their Pillar II fund, additional 4% state contributions will be made after January 1, 2023.

However, it is not immediately clear why the government chose to take such a radical step, which amounts to taking a forced, no-interest loan from future pensioners which had the effect of discouraging long-term savings and investment at a time when investment conditions were favourable, due to relatively low securities prices. The arguments given by the ministers in charge that it was necessary to support the budget balance seem unconvincing, given that both before and after the Covid-19 crisis, the State of Estonia had the smallest total government debt to GDP ratio in the European Union.[88]

Indeed, in the same period that this measure was debated and adopted, the Treasury of Estonia was able to take long-term loans at close to 0% nominal interest rates[89][90] and repeatedly sell short-term (12 months) credit notes at negative interest rates[91].

The above underlines the short-sightedness of the (now former) government's actions and the lack of justification for punishing future pensioners at a time when many of them were anyway suffering large losses to their pension savings due to the market turmoil. The weighted average index of Estonian II pillar pension funds grew by 16% during the period when the

[87] Overview from Pensionikeskus: www.pensionikeskus.ee/uudis/ii-samba-maksete-ajutine-katkestamine-2020-a/
[88] 8.4% of GDP on 31/12/2019 and 18.1% of GDP on 31/12/2021: https://ec.europa.eu/eurostat/databrowser/view/sdg_17_40/
[89] The Treasury took a 750 MEUR, 15-year loan from the Nordic Investment Bank (NIB) on the 30th of March, with an interest rate of 0.32% + the 6-month Euribor (the corresponding Euribor rate was -0.287% on 30 March 2020): see https://www.rahandusministeerium.ee/sites/default/files/Riigikassa/voetud_laenud_30.04.2020.pdf; https://www.rahandusministeerium.ee/et/eesmargidtegevused/riigikassa/riigi-finantsvarad-ja-kohustused/riigi-volakohustused; https://www.euribor-rates.eu/en/current-euribor-rates/3/euribor-rate-6-months/
[90] News item from the Ministry of Finance website: https://www.rahandusministeerium.ee/en/news/high-demand-international-investors-estonias-government-bond-issue
[91] The Treasury had issued several short-term government bonds (6-12 months) between March to early May 2020 for a total value of 475 MEUR with fixed interest rates ranging from -0.141% to -0,296%.

government contributions were suspended, demonstrating the significant value growth that the suspended contributions would have had.

Continuing to use suspensions of II pillar contributions as a "crisis" funding measure has the potential to significantly depress second pillar earnings for future pensioners.

The partial dismantling of pillar II in 2021

Although there have been many changes to the legal framework surrounding the Estonian second pension pillar, the most fundamental and controversial of these "reforms" was pushed through Parliament in 2020, tied to a vote of confidence of the then government. After a protracted legal battle between the parliamentary majority and the President of the Republic regarding the constitutionality of the new law, the Supreme Court eventually ruled by 12 votes to 7 to hold that the reform didn't infringe the constitution on October 20, 2020[92]. This meant that from 2021 onwards, the previously mandatory II pillar, in effect, became a voluntary pension fund with auto-enrolment. Pension savers who had been enrolled in the II pillar could now take out their savings before pension age, subject to a 20% income tax.

2021 had the first two "windows of opportunity" for withdrawing II pillar pension savings prior to pensionable age. All in all, 161 460 pension savers withdrew their II pillar savings (about 22% of all II pillar participants)[93]. The total amount withdrawn in this first round was approximately 1.44 billion euros gross or about a quarter of the total assets of Estonian II pillar funds.

BETTER FINANCE has previously opposed this change since it increases the risk of old-age poverty for those who liquidate their savings. This is because these people not only lose the tax benefits accorded to the II pillar, but surveys conducted among those intending to withdraw their II pillar savings showed that the majority would use the money to cover running costs (such as home renovations or paying back loans), rather than investing for retirement.[94]

The risk of increasing old-age poverty due to this reform is significant, given the already low-income replacement ratio of the first pillar (discussed earlier) and the fact that the largest proportion of savers who left the system were those on low or average incomes[15]

[92] Constitutional Court judgment 5-20-3: www.riigikohus.ee/en/constitutional-judgment-5-20-3

[93] Ministry of Finance statistics on II pillar withdrawals (Estonian): https://app.powerbi.com/view?r=eyJrIjoiYTFhNjU0OTgtMzE3ZC00NTVkLWEwN2YtYTcwZDI3NTUwZDlhIiwidCI6IjRmYjQ2MmUyLWE2MzktNGJlNC1iM2U1LTM2ZWM1MTg0M2M5MSIsImMiOjl9&pageName=ReportSection3cffbc10880514ec16dc

[94] BETTER FINANCE Press release October 27, 2020: https://betterfinance.eu/wp-content/uploads/PR-Dismantling-the-Estonian-Pension-System-is-not-the-Answer-27102020.pdf

Pillar III – Supplementary pension

The supplementary funded pensions scheme, or Pillar III, is a part of the Estonian pension system and is governed by the same act that governs Pillar II, the Funded Pension Act (Chapter 3 and following).

This scheme has been introduced with the aim of helping to maintain the same standard of living and adding more flexibility in securing a higher and/or stable stream of income after one reaches the age of 55. Therefore, the supplementary pension has been designed to help achieve a recommended level of 65% gross replacement ratio of an individual's previous income in order to maintain the established standard of living.

Supplementary pension participation is voluntary for all persons who can decide to save either by contributing to a voluntary pension fund or by entering a respective supplementary pension insurance contract with a life insurance company. The amount of the contributions is determined solely by the free choice of an individual and can be changed during the duration of the accumulation phase. There is also a possibility to discontinue contributions (as well as to finish the contract).

The supplementary funded pension contracts can be made with life insurers as pension insurance or by acquiring pension fund units from fund managers. An individual can choose between three different pension products:

1. Pension insurance with guaranteed interest;
2. Pension insurance with investment risk (unit-linked); and
3. Pension fund.

Pension Vehicles

Pillar II – Funded pension

From September 2019, there are two types of II pillar pension funds in Estonia – conservative and non-conservative funds.

For conservative funds, 80% of assets need to be invested into either bank deposits, investment-grade bonds, money-market instruments trading on regulated markets, other funds which invest the majority of their assets into the before-mentioned categories, as well as derivative instruments which are based on the categories of assets listed in this paragraph. In addition, conservative pension funds may not have an open net foreign exchange position worth more than 25% of total assets.

All other II pillar pension funds are free to set their investment strategies in their prospectus, with only the following global limits:

- Not more than 10% of assets can be provided as **direct loans**, with the additional requirement that the (legal) persons receiving the loans meet the same requirements as the issuers of bonds that the pension fund is allowed to buy ("investment grade");
- Not more than 5% of assets can be invested in **precious metals** and securities whose underlying assets are precious metals or the price of which is dependent on precious metals;
- Not more than 10% of assets can be invested in a single investment fund**,** with the allowed proportion rising to 30% of assets in the case of index funds;
- Not more than 50% of assets can be invested into securities, money market instruments and funds that are **not traded on regulated markets**. Direct loans to non-listed entities also count toward this cap;
- The **total open risk position of derivative instruments** may not exceed 50% of the assets of the fund, although derivative instruments designed to mitigate certain types of risks are exempt from this cap;
- Not more than 40% of assets may be invested in **immovables**, either directly or through real estate investment funds or companies investing in real estate or securities directly tied to the price of immovables;
- Not more than 10% of asset may be invested into a **single immovable property**, based on acquisition price;
- Not more than 15% of assets may be invested in the securities and money market instruments issued by one (legal) person.

Any asset manager wishing to undertake the management of II pillar pension funds, must by law, manage at least one pension fund that conforms to the legal limits of a conservative pension fund, as described below.

From April 1, 2021, it also became possible for pension savers to personally manage their pillar II investments through a Pension Investment Account. Any saver choosing this option will have their II pillar contributions (both personal and state contributions) flow into a special securities account at a bank of their choice[95], instead of the same contributions going into an investment fund.[96] The pension saver can then decide which securities or funds to invest their II pillar savings in. It's worth noting that aside from direct investments in securities, this system also allows savers to choose investment funds other than the specially regulated Estonian pillar II funds.

As of December 31, 2021, 546 548 people save under the Pillar II funds, with a further 3 919 people saving under the recently implemented second pillar personal investment accounts[97]. Together, approx. 79% of the economically active population save under a pillar II pension

[95] Currently, all of the four banks which offer II pillar investment funds in Estonia (LHV. SEB, Swedbank and Luminor) also offer the possibility to open a Pension Investment Account.
[96] Explanation from Pensionikeskus: https://www.pensionikeskus.ee/ii-sammas/pensioni-investeerimiskonto-pik/
[97] Statistics from Pensionikeskus: https://www.pensionikeskus.ee/statistika/ii-sammas/aktiivsed-investorid/

scheme[98]. Notably, just a year earlier the second pillar covered practically the entire economically active population, demonstrating again the effects of the 2021 pension reform (Ibid).

Less than 4% of those saving under a Pillar II scheme have opted for a conservative pension funds.

Pillar III – Supplementary pension

According to the law, two types of pension vehicles for supplementary pension (Pillar III) are allowed:

1. Voluntary pension funds;
2. Supplementary pension insurance contracts.

For the supplementary pension insurance vehicle, two product options are available:

- Pension insurance at a guaranteed interest rate;
- Pension insurance with investment risk (unit-linked).

Considering the size of Pillar III based on the coverage of the economically active population, the Estonian Pillar III amounted to only about 20% by the end of 2021[99].. On the other hand, the number of pillar III pension accounts with a positive balance has almost tripled compared to two years prior[100]. A large part of the growth may have come from people taking out their pillar II savings investing at least a part of their money into pillar III funds, which offer more flexibility in withdrawal terms. The wide-ranging public discussion on the topic of pension savings likely also paid a role.

However, this only had a small effect in the context of the overall decline of pension savings in the two pillars. The total growth of pillar III fund assets in 2021 was less than 10% of the amount taken out of the pillar II funds and a large part of this amount would have been made up of positive returns on capital and payments into the III pillar, which would have taken place even without the pillar II reforms[101].

The investment restrictions for supplementary pension funds are broadly the same as for non-conservative, II pillar pension funds, with the exception that supplementary funds are allowed to invest **up to 70% of assets into immovables** (as opposed to 40% for II pillar funds).

In addition, certain conflicts of interest provisions are laxer for voluntary pension funds. For example, by law, fees charged from a II pillar pension fund for investments made into UCITS managed by the same fund manager that manages the pension fund, or another fund manager belonging to the same consolidation group, need to be repaid into the pension fund. No such

[98] Own calculation based on Statistics Estonia and Pensionikeskus data
[99] Own calculation based on Statistics Estonia and Pensionikeskus data
[100] Data from Pensionikeskus: https://www.pensionikeskus.ee/statistika/iii-sammas/pensionikontode-arv/
[101] Own calculation baed on pensionikeskus statistics https://www.pensionikeskus.ee/statistika/iii-sammas/taiendava-kogumispensioni-fondide-maht/

provision exists for voluntary pension funds, leaving them more open to conflicts of interest from the pension fund manager.

Table EE3. Supplementary Pension vehicles market share		
Supplementary pension vehicles	Assets under management (AuM) / Reserves *(in €)*	Market share based on AuM / Reserves *(in %)*
Voluntary pension funds	387.839.238	58,20%
Supplementary pension insurance	278.570.000	41,80%
TOTAL	666.409.238	100,00%

Source: Own calculations based on pensionikeskus.ee data, 2022 (data as of 31.12.2021)

Charges

Pillar II – Funded pension

Pension funds are offered by asset management companies, which are managed under the Investment Funds Act and, as such, the funds are considered typical UCITS funds with special regulation via the Funded Pension Act.

A saver contributing to the pension fund receives the fund units, which represent the unitholder's share in the fund's assets. Each pension fund can have only one class of units. The nominal value of a unit at the beginning of the fund operation is €1 (up from €0.64 prior to 2021). The rights and obligations attached to a unit with respect to a unitholder will enter into force upon issuing a unit and will terminate upon redeeming a unit. A unit is deemed issued upon registration and is considered redeemed upon cancellation with the register. Ownership of a unit is proved by an entry in the register.

As the pension funds are considered typical UCITS funds, fees and charges typical for UCITS funds are applied to the pension funds, but with some legislative restrictions.

According to paragraphs 58 and 65 of the Investment Funds Act, the following charges can be applied to the expense of a II pillar pension fund:

- management fee,
- exit fee (unit redemption fee),
- transaction costs,
- success fee

Considering the individual saver, additional charges are paid from the individual value of pension savings:

- unit redemption fee,
- entry fee (unit issuance fee, resp. contribution fee).

As of September 2, 2019, the management fees of II pillar pension funds were legally capped at 1.2% for conservative pension funds and 2% for all other II pillar funds. Redemption fees were capped at 0.05% for conservative pension funds and 0.1% for all other II pillar pension funds. No subscription fee may be charged by a II pillar pension fund.

Redemption fees are types of charges that are applied on a one-off basis when a contribution to the fund is recorded respectively when the saver sells the pension units to the issuer. The effect of these charges is limited to the transaction, so there is only a cumulative effect that can be calculated as a simple summation. Redemption fees are also tied to the ability of savers to switch among the pension funds during the saving period. A fund can be replaced only with another fund of the II pillar-funded pension. The choice of the pension fund can be changed in two ways:

1. Directing contributions to a new fund – the units of the current fund will be retained and will continue earning in the former fund. After choosing a new fund, your future contributions will be transferred to it, i.e., units of different funds will appear side by side in your pension account.
2. Changing the pension fund units – the units of one pension fund will be replaced with the units of a new pension fund selected.

From January 1, 2011, onwards, there is no minimum limit for units upon changing a fund (before January 1, 2011, the minimum requirement was 500 units). Since August 1, 2011, it has been possible to transfer to a new pension fund all or only a part (e.g., 25%, 50% or 75%) of the assets collected in the former pension fund.

The investment funds act provides an obligatory reduction in the management fees of investment funds, in line with the growth of assets of the fund. Namely, after a II pillar pension fund reaches 100 million euros of assets under management, the fund manager is obliged by law to reduce the base management fee for each additional 100 million euros of assets under management by at least 15 per cent compared to the rate of the base management fee applicable to the previous 100 million euros. Funds are no longer required to enforce this reduction when the yearly base management fee reaches 0.4% of assets under management.

The idea of the maximum management fee caps and obligatory management fee reduction for II pillar pension funds was to ensure sufficient competition in the pension market at the time of its launch, despite the initial lack of economies of scale (given the initially low number of participants, the low level of salaries in Estonia at the time, as well as the small population of Estonia), while guaranteeing that the overall level of fees and charges would decrease when economies of scale are achieved.

The option of applying a success fee became possible as of January 1, 2019. According to paragraph 65^2 of the Investment Funds Act, the fund manager of a II pillar pension fund has the right to charge a success fee if the cumulative increase in the net asset value of a unit of the fund exceeds the cumulative increase in receipt of the pension insurance part of social tax as of December 31 of the year of registration of the pension fund (hereafter "reference index"). The success fee for a given year is limited by law to a maximum of 20% of the excess of the increase in net asset values over the reference index and to 2% of the asset value of this pension fund, whichever limit is lower.

Conservative pension funds do not have the right to apply a success fee.

The introduction of the success fee concept and other changes to the way pension fund fees need to be disclosed brought changes to the way Estonian pension funds disclose their fees and to how regulators and statistics agencies collect data on the fees. Given the backwards-looking nature of the success fee, pension funds are required to report on their "Total Expense Ratio" (hereafter referred to as TER) for the previous year.

The TER includes:

1) the fee paid to the fund manager for the management of the fund or the fees, charges and expenses directly related to the management of a public limited fund (management fee);
2) the fee paid to the depositary for the services provided (depositary's charge);
3) the transfer fees and service charges directly related to transactions performed for the account of the fund and other fees and charges and expenses related to the management of the fund and specified in the basic documents of the fund;
4) success fees.

The funded pension register (Pensionikeskus AS), which is the main provider of statistics for pension funds in Estonia, also stopped gathering statistics for separate classes of fees or charges and has moved to collecting statistics on the TER of II pillar pension funds. While this offers a complete overview of the costs of pension funds, it unfortunately also has the side-effect, from the point of view of this report, of limiting long-term comparability of cost levels, since TER statistics currently only go back to 2017.

The table below shows the TER for all II pillar pension funds between 2017-2021, divided into different risk categories following the Synthetic Risk and Reward Indicator (hereafter SRRI) methodology. Low-Risk Funds are those with an SRRI of 1-2, Medium-Risk Funds have an SRRI of 3-4, and High-Risk Funds have an SRRI of 5-7. Pension funds designated as "conservative" are marked with an asterisk.

As can be seen from the table, the average fees generally declined between 2017 and 2020, but that decline has stagnated in the last few years. The competitive pressure associated with many new II pillar funds, most of these low-cost index funds, entering the Estonian II pillar pension funds market in the last five years may have been one of the main drivers of this decrease in total fees, while success fees associated with the bull market of 2021 may be responsible for stopping the trend.

Table EE4. II pillar Pension Funds' Fees

	Pension fund	2017	2018	2019	2020	2021
High-risk Funds	Luminor A Pluss Pension Fund	1.57%	1.50%	1.62%	1.45%	1,44%
	Pension Fund LHV XL	1.35%	1.62%	0.98%	1.13%	1,28%
	LHV Pensionifond Green	n/a	n/a	0.85%	1.01%	0,83%
	SEB Pension Fund 100	n/a	n/a	0.96%	0.99%	0,87%
	Swedbank Pension Fund K1980-1989	1.13%	0.99%	0.70%	0.66%	0,68%
	Pension Fund LHV Index	0.86%	0.69%	0.63%	0.39%	0,33%
	Tuleva World Stocks Pension Fund	0.47%	0.47%	0.45%	0.39%	0,37%
	SEB Pension Fund Index 100	0.49%	0.43%	0.40%	0.36%	0,34%
	Swedbank Pension Fund K1990-1999 Index	0.89%	0.72%	0.47%	0.33%	0,31%
	Swedbank Pension Fund Index	n/a	n/a	n/a	n/a	0,31%
	Luminor "Sustainable Future" index Fund	n/a	n/a	n/a	n/a	0,47%
Medium -risk Funds	Luminor A Pension Fund	1.48%	1.40%	1.58%	1.39%	1,43%
	Luminor B Pension Fund	1.38%	1.33%	1.55%	1.39%	1,35%
	Pension Fund LHV L	1.34%	1.58%	1.01%	1.14%	1,62%
	Luminor C Pension Fund*	0.78%	0.75%	0.97%	1.00%	1,01%
	SEB Progressive Pension Fund	1.33%	1.27%	0.94%	1.00%	1,01%
	SEB Energetic Pension Fund	1.41%	1.30%	0.92%	0.97%	0,97%
	Pension Fund LHV M	1.08%	1.20%	0.84%	0.86%	1,17%
	Swedbank Pension Fund K1960-1969	1.04%	0.92%	0.65%	0.66%	0,74%
	Swedbank Pension Fund K1970-1979	1.10%	0.97%	0.67%	0.65%	0,70%
Low-risk Funds	SEB Optimal Pension Fund	1.11%	1.07%	0.94%	0.99%	1,03%
	Pension Fund LHV S	0.82%	0.70%	0.69%	0.62%	0,64%
	Pension Fund LHV XS*	0.65%	0.60%	0.61%	0.53%	0,53%
	SEB Conservative Pension Fund*	0.57%	0.57%	0.49%	0.50%	0,51%
	Tuleva World Bonds Pension Fund*	0.50%	0.50%	0.47%	0.43%	0,41%
	Swedbank Conservative Pension Fund	0.39%	0.35%	0.37%	0.37%	0,42%
	Average (not weighted)	0.99%	0.95%	0.82%	0.80%	0.80%

*Conservative pension funds

Source: *Pensionikeskus.ee, 2022 (data as of 31.12.2021)*

Pillar III – Supplementary pension

The supplementary pension is organised in two ways: as an insurance contract or as a supplementary pension fund. The way in which charges are disclosed to the client is significantly different for both.

For insurance contracts, no charges are publicly disclosed. Even if the charges are disclosed, the structure of fees is not transparent enough to allow the calculation of the total cost ratio. In most cases, the insurer is entitled to change contract fees and risk payments unilaterally during the insurance contract validity, with the obligation to inform the policyholder of the changes at least 30 days before such changes become effective. If the policyholder does not agree with the changes, he is entitled to terminate the contract.

The situation is different for a supplementary pension fund. All funds disclose the most actual charges, which are presented in the table below.

Table EE 5. Supplementary Pension Funds´ Fees

Pension fund name	2017	2018	2019	2020	2021
LHV Index Plus*	0,99%	0,85%	0,75%	0,42%	0,42%
Luminor Aktsiad 100	1,64%	1,66%	2,12%	2,16%	2,14%
Luminor Intress Pluss	1,41%	1,53%	1,84%	1,84%	1,77%
SEB Active	1,97%	1,83%	1,78%	1,76%	1,19%
LHV Supplementary	1,11%	1,08%	1,36%	1,40%	1,46%
Swedbank V100	1,77%	1,75%	1,43%	1,39%	1,15%
Swedbank V60	1,64%	1,60%	1,31%	1,31%	1,05%
SEB Balanced	1,40%	1,31%	1,27%	1,30%	1,13%
Swedbank V30	1,55%	1,48%	1,21%	1,23%	0,95%
LHV Green Plus	-	-	-	1,03%	0,98%
Tuleva III Pillar*	-	-	0,49%	0,43%	0,35%
Swedbank V100 exit restricted*	-	-	0,90%	0,40%	0,29%
Swedbank V60 exit restricted*	-	-	-	0,40%	0,29%
Swedbank V30 exit restricted*	-	-	-	0,40%	0,29%
Luminor “Sustainable Future”*	-	-	-	-	0,58%
SEB “Climate Future”*	-	-	-	-	0,42%
Swedbank III pillar*	-	-	-	-	0,29%
AVERAGE	1,50%	1,45%	1,31%	1,11%	0,87%

**Index funds*

Source: Own research based on pensionikeskus.ee data 2022 (data as of 31.12.2021)

As can be seen, the average of III pillar pension fund fees has been significantly decreasing in the last 5 years. The biggest impact on the average comes from the introduction of many low new low-cost funds, but the charges of “older” funds have also trended down somewhat, with the average charges of the nine funds that existed both in 2017 and 2021 having decreased from 1.50% to 1.25%.[102]

Taxation

Both funded pillars use the "EET" regime for taxation, which means that the contributions paid towards the pension schemes are tax-exempt. Returns achieved by respective pension funds are also tax-exempt and the benefits paid out during the retirement are subject to income tax.

Pillar II – Funded pension

Estonia is applying an EET taxation regime for Pillar II with some specifications (deductions) to the pay-out taxation regime, where generally the "T" regime is applied.

Taxation of the Fund

Income or profits of the Fund are not subject to taxes at the fund level.

Taxation of unitholders

Contributions to the Fund usually consist of two parts:

1. 2% withheld from the wages and other remuneration of a resident natural person participating in the II pillar; in certain cases, from the remuneration paid to a member of the management or supervisory body of a legal person; from the business income of sole proprietors; from the remuneration or fees paid to a natural person on the basis of a contract for services, authorisation agreement or another contract under the law of obligations entered into for the provision of services, and
2. the amount added by the state, which equals 4% of the sum of the resident natural person's wages and other remuneration.

The above-mentioned 2% withheld from wages and other remuneration is tax-deductible, i.e., not subject to income tax.

Exchange of a fund's unit for another unit of a II pillar pension fund and redemption of a unit to enter into an insurance contract for a funded pension (pension contract) is not taxed.

During the pay-out phase, income tax is charged on payments made from the II pillar pension fund to the unitholder, the successor of the unitholder, as well as on payments made to the policyholder, an insured person or a beneficiary pursuant to a pension contract provided for in the Funded Pensions Act. Thus, if a unitholder reaches retirement age, funded pension

[102] Own calculation

payments will be taxed together with the state (NDC PAYG pillar) pension. The Estonian income tax rate is 20%,

The taxation period for natural persons is the calendar year. In Estonia, the annual basic exemption (non-taxable amount) per year depends on the person's income, ranging from 6000 EUR for those earning up to 14 400 EUR per annum and none for those earning above 25 200 EUR per annum[103]. The same rate applies also to pension payments.

Taxation of successors

Payments to a successor upon redemption of units are taxed with the income tax rate established by law. Transfer of units into a successor's pension account is not taxable.

Pillar III – Supplementary pension

The effective Income Tax Act stipulates EET regime (similar to Pillar II) where:

I. Resident natural persons have the right to subtract the amounts paid to acquire supplementary fund units from their taxable income. The amount that is deducted may be up to 15% of the income earned in the taxation period, but no more than €6000.
II. Income or profits of the fund are not subject to taxes at the fund level.
III. Pay-outs from a supplementary pension fund are subject to income tax as follows:
    a) 10% income tax if they are made under any of the following circumstances:
        (i) after the unitholder reaches the age of 55, but not before five years have passed from the acquisition of the units;
        (ii) in the event of the unit holder's full and permanent incapacity for work;
        (iii) when the fund is liquidated.
    b) In all other cases, pay-outs from the fund are subject to income tax valid at the time the pay-out is made.
IV. Pay-outs made by an insurance company to the policyholder from the assets saved in the fund as lifelong pension payments after the policyholder turns 55 years of age are exempt from income tax.

[103] https://www.emta.ee/eraklient/maksud-ja-tasumine/maksusoodustused/maksuvaba-tulu-arvestamine

Pension Returns

Pillar II – Funded pension

The year 2021 was characterised on the one hand by a strong global "bull market", with most stock indices showing high returns and on the other hand by accelerating inflation in the second half of the year. The year-on-year inflation reached slightly over 12% by the end of the year, which depressed real returns and put pressure on pension funds with a more conservative strategy. This is because conservative funds invest mainly in bonds and were thus both particularly vulnerable to the high inflation (due to the lower average yield of their portfolios) and also suffered from a fall in the nominal value of their assets due to rising interest rates which accompanied rising inflation.

Overall, Estonian pillar II pensions funds finished the year with an asset-weighted real return of 6.3%, due to very high nominal returns overcoming the high inflation. Table EE6 presents the cumulative, inflation-adjusted returns of all 26 pillar II pension funds active in Estonia in 2021. As can be seen from the table, the majority of investment funds suffered negative returns, with 6 funds losing more than 10% of their net asset value in real terms.

The apparent contradiction between the overall positive result and poor performance of a majority of funds can be explained by the very small market share of the worst performing funds.

In 2021, the foreign owned banks – Swedbank, SEB and Luminor – held approximately 64% of the market between them, with Swedbank being the uncontested market leader, holding a 39% market share. The biggest local bank, LHV, has the second-largest pillar II market share, with 29%[104]. The only pension fund manager in Estonia that is not a wholly owned subsidiary of a bank is the relatively new mutual fund Tuleva, which entered the market in 2017, branding itself as a "social start-up" and advocating for passively managed low-fee funds. Although by the end of 2021, it held only about 7% of the second pillar market, its entry pushed all the other pension fund managers to offer passively managed funds as part of their range. This, in turn, has contributed significantly to the reduction of pension fund fees in the Estonian market.

It should be noted that volatility and performance are closely tied to the structure of the portfolio and the degree of deviation from the benchmark. Active asset management emphasises "stock-picking skills" to optimise returns and deliver overperformance to the market by the maturity (recommended holding period) of the product. To which extent this is happening in Estonian II pillar pension funds can be seen in table EE6 below.

[104] Finantsinspektsioon market overview 2021: https://www.fi.ee/sites/default/files/finantsteenuste_turu_ulevaade_seisuga_31.12.21_1.pdf

Table EE6. Annualised real (inflation-adjusted) returns of Estonian II pillar pension funds

Pension fund name	1-year	5-years	10-years	Since inception
Swedbank Pension Fund K1990-1999 indeks*	19,52%	8,39%	n/a	8,39%
SEB Pension Fund Index 100*	16,71%	7,98%	n/a	7,98%
SEB 100	14,05%	n/a	n/a	8,57%
Tuleva World Stocks Pension Fund*	12,33%	5,43%	n/a	5,43%
Swedbank Pension Fund K1980-1989	11,08%	4,89%	4,98%	3,63%
Pension Fund LHV Index*	10,79%	5,12%	n/a	5,12%
Luminor Pension Fund A Plus	7,52%	3,78%	4,74%	3,37%
SEB Energetic Pension Fund	7,37%	4,00%	3,87%	2,67%
Luminor "Sustainable Future" Index*	2,12%	n/a	n/a	2,12%
Swedbank Pension Fund K1970-1979	1,20%	1,62%	2,68%	1,00%
SEB Progressive Pension Fund	0,30%	0,49%	1,35%	0,05%
Luminor Pension Fund A	-1,82%	1,53%	2,85%	2,82%
Pension Fund LHV XL	-2,01%	1,25%	3,10%	1,93%
Pension Fund LHV L	-3,00%	0,48%	2,31%	2,41%
Swedbank Pension Fund Index*	-3,67%	n/a	n/a	-3,67%
Swedbank Pension Fund K1960-1969	-5,96%	-1,01%	0,45%	-0,82%
Pension Fund LHV M	-6,71%	-1,42%	0,95%	0,57%
SEB Optimal Pension Fund	-7,60%	-1,80%	-0,72%	-0,14%
Luminor Pension Fund B	-8,82%	-0,98%	0,77%	1,09%
LHV Roheline*	-9,15%	n/a	n/a	33,34%
SEB Conservative Pension Fund†	-10,78%	-3,59%	-2,03%	-1,73%
Pension Fund LHV S	-12,15%	-3,96%	-1,04%	-0,08%
Swedbank Conservative Pension Fund†	-12,23%	-3,47%	-1,54%	-2,23%
Pension Fund LHV XS†	-12,25%	-3,80%	-0,93%	-0,43%
Luminor Pension Fund C†	-13,21%	-2,61%	-0,71%	-0,29%
Tuleva World Bonds Pension Fund*†	-14,21%	-3,07%	n/a	-3,07%

* Index funds

† Funds with a conservative strategy

Source: Own composition based on Pensionikeskus and Statistics Estonia data 2022 (data 31.12.2021)

As can be seen, the only four funds to have achieved real returns in excess of 5% over the latest 5-year period are passively managed (and low cost) index funds. It must be noted that five years is a relatively short period in terms of economic cycles, and we cannot compare longer-term performance in Estonia since the first index-based pension funds appeared in Estonia barely more than five years ago. However, historical returns in other markets support the likelihood that low-cost index funds may well continue to outperform higher-cost actively managed funds in the long term[105,106].

[105] BF study on cost and performance of EU equity funds: betterfinance.eu/wp-content/uploads/BETTER1.pdf

[106] ESMA study on cost and performance of EU investment products: www.esma.europa.eu/sites/default/files/library/esma_50-165-1710_asr_performance_and_costs_of_eu_retail_investment_products.pdf

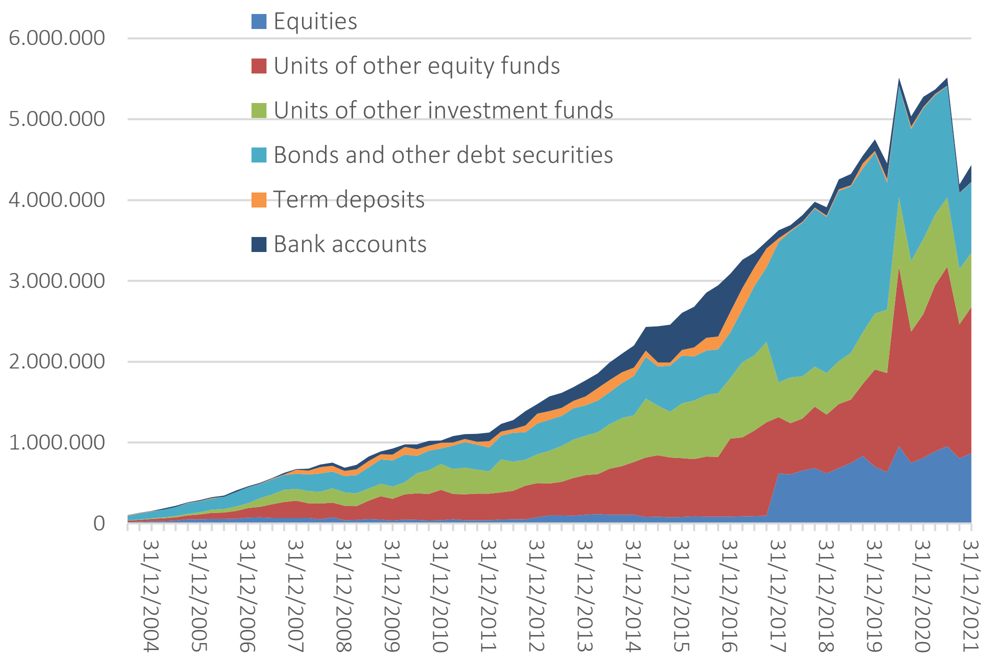
Unfortunately, as can be seen from the above table, there are several II pillar investment funds with significantly negative long-term returns. To put it plainly, these funds have eroded the real value of their clients' savings. While the percentages seem small, it is worth noting that, for example, a constant annual real return of -2% would decrease the purchasing power of a client's savings by about 60% over 45 years (which corresponds to the number of years a 20-year-old would have to work until the current retirement age).

Most of the II pillar funds with negative real returns are in the legal category of "conservative" funds, discussed above in the "Pension Vehicles" chapter. This category of funds is subject to significant restrictions on investment strategy and is often recommended by providers to investors approaching retirement age as a way to prevent any significant negative effects of short-term shocks close to retirement age. However, even for funds pursuing such a strategy, negative real returns over the long term should be considered problematic. In particular, it cannot be expected that only people close to retirement age are to enrol into conservative pension funds. Indeed, until June 2019, people for whom it was mandatory to join the 2nd pension pillar, but did not themselves choose a pension fund, were randomly auto enrolled into a fund with a conservative strategy. According to the Ministry of Finance[107], about 15700 people who were auto enrolled into a conservative pension fund between 2003 and 2019 had not changed fund as of 31st as of 31.12.2021.

As the types of underlying assets in which a fund invests are a key determinant of returns, the graph below demonstrates the overall portfolio structure of II pillar pension funds in Estonia. As asset classes such as money market instruments, direct loans, derivatives and other assets are either not invested at all or to a minimum degree, then the chart only shows such asset classes, which consistently make up at least 0.5% of the overall portfolio structure. However, it should be noted that, for example, a lack of direct investment of pension funds into real estate does not mean these funds do not have exposure to that asset class through investments in real estate funds (which in the underlying dataset would fall under the category "units of other investment funds").

[107] Estonian Ministry of Finance pension statistics for 2020 (in Estonian): https://www.pensionikeskus.ee/wp-content/uploads/page/rahandusministeeriumi-statistika/012021.pdf

Graph EE7. Portfolio structure of II pillar pension funds (in thousands €



Source: Own composition based on Finantsintspektsioon data (fi.ee), 2022 (data 31.12.2021)

The trend of growing investment into other UCITS was abruptly reversed in 2017 and direct bond (as well as equity investments) rapidly rose to dominate in the portfolio structure of II pillar pension funds. These sudden changes can be at least partially associated with regulatory changes. However, since mid-2018, investments in UCITS, especially equity funds, started to gradually grow again.

This can be associated with the entry and increasing importance of passively managed index funds, since at the time of writing of this report, most index funds in Estonia invest exclusively into larger foreign index funds, rather than trying to replicate any index themselves.

Money held by investment funds in banks, either in current accounts or savings deposits, has decreased significantly in since 2015, likely due to negative interest rates.

Nominal, as well as real returns of II pillar pension funds in Estonia using a weighted average by assets under management (AuM) are presented in a summary table below.

Table EST 8. Nominal and Real Returns of II Pillar Pension Funds in Estonia						
2003	Nominal return after charges, before inflation and taxes	6,93%	4,44%	Real return after charges and inflation and before taxes	5,74%	0,75%
2004		10,00%			5,20%	
2005		13,54%			9,88%	
2006		7,45%			2,35%	
2007		6,33%			-3,41%	
2008		-23,47%			-31,01%	
2009		13,09%			14,96%	
2010		9,36%			3,94%	
2011		-4,14%			-8,23%	
2012		9,74%			6,11%	
2013		3,36%			1,32%	
2014		5,00%			4,94%	
2015		2,52%			2,69%	
2016		3,33%			0,98%	
2017		3,76%			0,00%	
2018		-2,47%			-5,79%	
2019		9,77%			7,97%	
2020		3,76%			4,64%	
2021		13,33%			1,30%	

Source: Own calculations based on Pensionikeskus data, 2022 (data 31.12.2021)

Considering the fact that the taxation in Estonia's II pillar (as well as supplementary) pension scheme is applied to the pay-out phase only and the income of each individual is tested, calculating the after-tax annual pension fund performance would lead to misleading results and only general assumptions of tax implications during the accumulation phase. Therefore, the after-income tax performance calculations have not been made in this study.

Additionally, we present the AuM weighted performance for periods of 1, 3, 5, 7 and 10 years and since the inception of the II pension pillar.

Table EST 9. Nominal and Real Returns of II Pillar Pension Funds in Estonia		
Holding Period	Net Nominal Annualized Performance	Real Net Annualized Performance
1-year	13,33%	1,30%
3-years	8,88%	4,60%
5-years	5,49%	1,52%
7-year	4,75%	1,61%
10-years	5,12%	2,35%
Since inception	4,44%	0,75%

Source: Own calculations based on Pensionikeskus data, 2022 (data 31.12.2021)

Pillar III – Supplementary pension

When analysing the performance of supplementary pension vehicles, only the pension funds should be considered. Insurance-based vehicles do not disclose this information on a periodical basis, as the market risk is shifted onto the insurer.

Supplementary pension funds do differ in their strategy, mostly based on the volatility of their portfolios. In most cases and compared to II pillar pension funds, the investment strategies of supplementary pension funds' portfolio managers are more aggressive. By large, the investment strategies do allow having up to 100% of assets allocated into equities and equity-based structured products. Some asset management companies have reacted to this and started to also offer supplementary pension funds with a conservative strategy.

Broadly, the recent tendencies are the same for the supplementary pension fund market as for the II pillar pension funds market, with more and more providers launching low costs, passively managed "index" funds, with the only difference being that most providers were considerably slower to launch supplementary index funds than II pillar ones. At the beginning of 2019, only LHV was offering a supplementary index fund. However, since then, Swedbank has launched three exit-restricted index funds, differing on the amount of equity exposure (named V100, V60 and V30, with the number in each name indicating the maximum equity exposure) as well as one classic (non-restricted) index fund, while both Tuleva and Luminor launched supplementary index funds, named "Tuleva III Pillar fund" and "Luminor Sustainable Future, Index fund" respectively. This leaves SEB bank as the only supplementary pension fund provider in Estonia not to offer a III pillar index fund.

In addition, investment funds marketing themselves as "sustainable" have entered the market, with LHV launching its Green Pluss fund in late 2020 and Luminor launching its own sustainable index fund (mentioned above) in early 2021.

In table EE10, the performance of supplementary pension funds is shown on a cumulative basis. Returns are shown for funds for which at least two years of returns data is available, and the pension funds are ranked according to the annualised real return since the inception of the fund.

The picture is relatively similar to that of mandatory pension fund returns. Those index funds included in the table, those for which there were at least three years of return data available by the end of 2021, occupy the three top slots in terms of average return since inception. Again, it should be noted that the time horizon of these funds is too short to draw definitive conclusions and that past performance does not guarantee future returns.

However, the high fees for many of the best performing, actively managed III pillar funds, as shown earlier in table EE6, will make it difficult for these funds to keep up relatively high net returns in the long term, compared to funds with similar strategies and lower fees.

Table EE10. Supplementary pension funds' cumulative inflation-adjusted performance

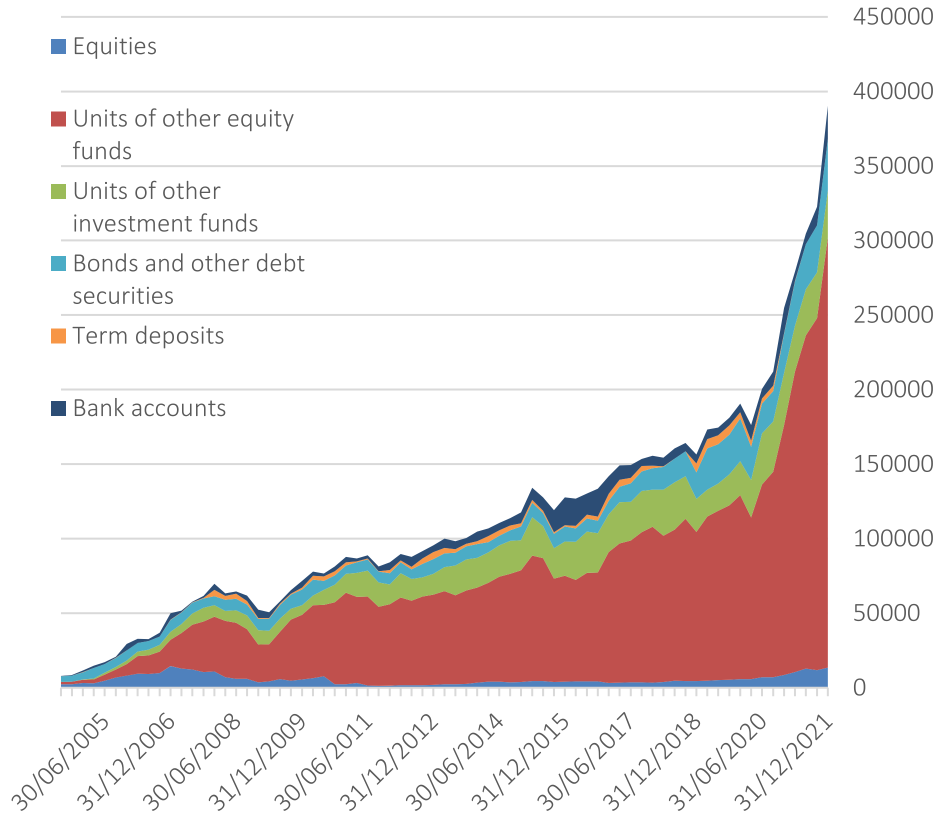
Pension fund name	1-year	3-years	10-years	Since inception
LHV Supplementary Pension Fund	-3,89%	3,87%	3,77%	3,09%
Luminor Aktsiad 100 Pension Fund	-1,35%	7,96%	5,35%	4,57%
Luminor Intress Pluss Pension Fund	-13,21%	-1,10%	0,06%	-0,13%
Luminor Index "Sustainable Future"*	1,55%	n/a	n/a	1,55%
SEB Active Pension Fund	14,19%	13,16%	5,77%	1,80%
SEB Balanced Pension Fund	-7,69%	-0,36%	-0,56%	-0,48%
Swedbank Pension Fund V30	-7,66%	-0,24%	0,11%	-0,70%
Swedbank Pension Fund V60	-0,55%	3,99%	2,32%	0,10%
Swedbank Pension Fund V100	8,91%	10,06%	5,19%	2,10%
LHV Green Plus*	-7,43%	n/a	n/a	1,30%
LHV Pension Fund Index Plus*	10,62%	13,47%	n/a	5,85%
Swedbank Pension Fund V30 Index (Exit Restricted)*	-5,55%	n/a	n/a	-5,55%
Swedbank Pension Fund V60 Index (Exit Restricted)*	3,18%	n/a	n/a	3,18%
Swedbank Pension Fund V100 Index (Exit Restricted)*	20,40%	13,87%	n/a	13,87%
Swedbank III Pillar Pension Fund Index*	-5,60%	n/a	n/a	-5,60%
Tuleva III Pillar Pension Fund*	14,25%	7,66%	n/a	7,66%

* Index funds

Source: Own composition based on Pensionikeskus data, 2022 (data 31.12.2021)

In terms of which assets supplementary pension funds invest in, the portfolios' structure differs significantly from that of mandatory pension funds, with a larger proportion is invested in equity-based structured financial products (mainly equity based UCITS funds), as can be seen from the graph on the following page.

Graph EE11.Supplementary pension funds' portfolio structure (in thousands €)



Source: Own composition based on Finantsintspektsioon data (fi.ee), 2021 (data 31.12.2021)

Similar to the mandatory pension funds, the portfolio structure of supplementary pension funds tends to change in favour of packaged products (UCITS funds, ETFs), confirming the trends of investing via financial intermediaries. However, this trend is even more pronounced in the III pillar.

By the end of 2021, close to 82% of supplementary pension fund assets were invested into units of other funds, mostly equity funds, while only slightly over 12% were invested directly into stocks or bonds, with the rest largely being held in bank accounts.

While above this report looked at the returns of individual funds, the overall functioning of the supplementary pension funds system is best understood from looking at the long-term returns of all funds, weighed by their assets under management.

Table EE12. Nominal and Real Returns of Supplementary Pension Funds in Estonia						
2003		9,40%			8,21%	
2004		13,03%			8,23%	
2005		23,78%			20,12%	
2006		15,57%			10,47%	
2007		8,37%			-1,36%	
2008		-40,40%			-47,93%	
2009		21,99%			23,87%	
2010	Nominal return after charges, before inflation and taxes	14,21%	5.60%	Real return after charges and inflation and before taxes	8,79%	1.78%
2011		-8,00%			-12,08%	
2012		11,76%			8,12%	
2013		5,41%			3,36%	
2014		7,69%			7,62%	
2015		2,93%			3,10%	
2016		4,68%			2,33%	
2017		6,05%			2,29%	
2018		-6,51%			-9,83%	
2019		15,61%			13,81%	
2020		3,63%			4,51%	
2021		18,34%			6,30%	

Source: Own calculations based on Pensionikeskus.ee data, 2022 (data as of 31.12.2021)

Another view on the performance allowing the comparison across the EU countries and over time is presenting the nominal as well as real net performance according to the different periods.

Table EE13 Performance of Pillar III Pension funds in Estonia		
Holding Period	Net Nominal Annualised Performance	Real Net Annualised Performance
1-year	18,34%	6,30%
3-years	12,34%	8,14%
5-years	7,05%	3,12%
7-year	6,11%	3,01%
10-years	6,75%	4,00%
Since inception	5,60%	1,78%

Source: Own calculations based on Pensionikeskus.ee data, 2022 (data as of 31.12.2021)

As exemplified by the two above tables, despite higher fees, III pillar funds have, on average, provided higher returns than II pillar funds. The difference of 1.03% in terms of annualized real returns since inception, translates into a total cumulative difference of close to 23% since the founding of the current pension system. Put more simply, for a 1000 EUR investment in 2003, supplementary pension funds would, on average, have been worth about 230 EUR more in the end of 2021 than investing the same amount in pillar II pension funds.

One likely cause of this has likely been the much greater concentration of assets in more "aggressive", equity-heavy funds and fewer restrictions (compared to pillar II pension funds) on investment strategies and the extent to which supplementary funds can invest into equities. This difference in regulation was particularly large at the beginning of the multi-pillar pension system in Estonia but has decreased gradually through subsequent reforms of the II pillar.

Pensions Outlook for 2022 – Financial Repression

Despite the volatile market conditions and accelerating inflation at the end of the year, 2021 was overall a reasonably good year for pension savers in Estonia, with positive real returns. However, due to a combination of record inflation and market turmoil caused by the unprovoked invasion of Ukraine, 2022 seems very likely to prove catastrophic for pension savings.

Consumer prices have increased by 18,1%[108] just in the first 8 months of 2022, while at the same time, 7 out of the 10 biggest II pillar funds suffered nominal losses of more than 6%[109]. This points to a tremendous loss of purchasing power of people's savings, likely to erase all real returns since the creation of the II pillar system.

The first 8 months of 2022 were even worse for supplementary pension funds, where all 10 of the biggest funds by amount of assets under management were deep in negative territory, even before taking inflation into account, with nominal losses ranging between 6.98% to 10.58% (ibid).

Recommending solutions to Russia's aggression in Ukraine is beyond the scope of this report. However, the author strongly calls on both the government of Estonia and the European Central Bank (ECB) to act with more decisiveness in reigning in the rampant inflation which is destroying the purchasing power of all savings.

Just in the first 8 months of 2022, inflation decreased the purchasing power of II and III pillar pension savings in Estonia by close to 900 million euros[110]. If history is any guide, markets are very likely to recover eventually and find new highs. However, significant economy-wide price deflation is extremely rare and usually only occurs in conjunction with economic depression. Put more simply, once consumer prices go up, they rarely come down again. In fact, there is a risk of higher inflation expectations becoming entrenched, which could fuel higher inflation even when the initial causes cease. These historic tendencies underline the case for acting decisively in the face of high inflation.

It's notable that at the time of writing this report, the ECB's headline interest rate was three times lower than the equivalent rate of the US Federal Reserve.

108 Eurostat data https://ec.europa.eu/eurostat/databrowser/view/PRC_HICP_MIDX/default/table?lang=en&category=prc.prc_hicp
109 Data from www.pensionikeskus.ee
110 Own calculation, based on Eurostat and pensionikeskus data

Conclusions

Estonia, as an early pension system reformer, introduced in 2003 a typical multi-pillar pension system that combines unfunded state schemes, as well as an auto-enrolled second pillar and voluntary pillars, the latter two of which are fully funded. Different types of pension vehicles in Pillars II &III) allow savers to choose from a wide variety of investment strategies. Lower transparency in fee history contrasts with the high transparency of performance disclosed on a daily basis. The exception is Pillar III insurance contracts, where no information about performance or fees is publicly disclosed. This resulted in an inability to confront the nominal as well as real returns of insurance contracts with other options available to Estonian savers.

The performance volatility of most pension vehicles is relatively high. However, Estonian savers tend to accept higher risk with regard to their savings. Pillar III vehicles are a typical example of highly volatile pension vehicles.

A new trend emerged in 2016 and continued into 2021 – the introduction of low-cost indexed pension funds for both pension pillars, which could deliver higher value to savers due to lower charges compared to peers. The competitive pressure from these new low-cost funds has led to an overall decrease in fees for II pillar funds, which should increase the ability of the funds to deliver above-benchmark performances to their clients in future years.

Overall, achieving an adequate gross salary replacement ratio in retirement remains a challenge in Estonia. This challenge has only become greater in 2021, after about a quarter of all II pillar pension savings were withdrawn by savers before retirement. This was enabled by a controversial change to the Pension system, which BETTER FINANCE strongly criticised already in 2020[111].

Unfortunately, based on the first 8 months of the year, 2022 looks set to be even worse for pension savers. While the negative nominal returns seen so far in 2022 are likely to be reversed when stock markets eventually recover from the disruption of the war and energy crisis, there is precious little hope of reversing the high-double-digit growth in consumer prices, which is decreasing the real value of pension savings. BETTER FINANCE calls on both national governments in the EU as well as the European Central Bank to urgently take more decisive steps to combat high inflation.

[111] https://betterfinance.eu/publication/dismantling-the-estonian-pension-system-is-not-the-answer/

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Acronyms

AIF	Alternative Investment Fund
AMC	Annual Management Charges
AuM	Assets under Management
BE	Belgium
BG	Bulgaria
Bln	Billion
BPETR	'Barclay's Pan-European High Yield Total Return' Index
CAC 40	'Cotation Assistée en Continu 40' Index
CMU	Capital Markets Union
DAX 30	'Deutsche Aktieindex 30' Index
DB	Defined Benefit plan
DC	Defined Contribution plan
DE	Germany
DG	Directorate General of the Commission of the European Union
DK	Denmark
DWP	United Kingdom's Governmental Agency Department for Work and Pensions
EBA	European Banking Authority
EE	Estonia
EEE	Exempt-Exempt-Exempt Regime
EET	Exempt-Exempt-Tax Regime
ETF	Exchange-Traded Fund
EIOPA	European Insurance and Occupational Pensions Authority
ES	Spain
ESAs	European Supervisory Authorities
ESMA	European Securities and Markets Authority
EU	European Union
EURIBOR	Euro InterBank Offered Rate
EX	Executive Summary
FR	France
FSMA	Financial Services and Market Authority (Belgium)
FSUG	Financial Services Users Group - European Commission's Expert Group
FTSE 100	The Financial Times Stock Exchange 100 Index
FW	Foreword
GDP	Gross Domestic Product
HICP	Harmonised Indices of Consumer Prices
IBEX 35	Índice Bursátil Español 35 Index

IKZE	‘Indywidualne konto zabezpieczenia emerytalnego’ – Polish specific Individual pension savings account
IRA	United States specific Individual Retirement Account
IT	Italy
JPM	J&P Morgan Indices
KIID	Key Investor Information Document
LV	Latvia
NAV	Net Asset Value
Mln	Million
MSCI	Morgan Stanley Capital International Indices
NL	Netherlands
OECD	The Organisation for Economic Co-Operation and Development
OFT	United Kingdom’s Office for Fair Trading
PAYG	Pay-As-You-Go Principle
PIP	Italian specific ‘Individual Investment Plan’
PL	Poland
PRIIP(s)	Packaged Retail and Insurance-Based Investment Products
RO	Romania
S&P	Standard & Poor Indexes
SE	Sweden
SK	Slovakia
SME	Small and Medium-sized Enterprise
SPIVA Scorecard	Standard & Poor Dow Jones’ Indices Research Report on Active Management performances
TEE	Tax-Exempt-Exempt Regime
TCR/TER	Total Cost Ratio/ Total Expense Ratio
UCITS	Undertakings for the Collective Investment of Transferable Securities
UK	United Kingdom

Glossary of terms

Accrued benefits* – is the amount of accumulated pension benefits of a pension plan member on the basis of years of service.

Accumulated assets* – is the total value of assets accumulated in a pension fund.

Active member* – is a pension plan member who is making contributions (and/or on behalf of whom contributions are being made) and is accumulating assets.

AIF(s) – or Alternative Investment Funds are a form of collective investment funds under E.U. law that do not require authorization as a UCITS fund.[289]

Annuity* – is a form of financial contract mostly sold by life insurance companies that guarantees a fixed or variable payment of income benefit (monthly, quarterly, half-yearly, or yearly) for the life of a person(s) (the annuitant) or for a specified period of time. It is different than a life insurance contract which provides income to the beneficiary after the death of the insured. An annuity may be bought through instalments or as a single lump sum. Benefits may start immediately or at a pre-defined time in the future or at a specific age.

Annuity rate* – is the present value of a series of payments of unit value per period payable to an individual that is calculated based on factors such as the mortality of the annuitant and the possible investment returns.

Asset allocation* – is the act of investing the pension fund's assets following its investment strategy.

Asset management* – is the act of investing the pension fund's assets following its investment strategy.

Asset manager* – is(are) the individual(s) or entity(ies) endowed with the responsibility to physically invest the pension fund assets. Asset managers may also set out the investment strategy for a pension fund.

Average earnings scheme* – is a scheme where the pension benefits earned for a year depend on how much the member's earnings were for the given year.

Basic state pension* – is a non-earning related pension paid by the State to individuals with a minimum number of service years.

Basis points (bps) – represent the 100th division of 1%.

Benchmark (financial) – is a referential index for a type of security. Its aim is to show, customized for a level and geographic or sectorial focus, the general price or performance of the market for a financial instrument.

[289] See Article 4(1) of Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No 1060/2009 and (EU) No 1095/2010, OJ L 174, 1.7.2011, p. 1–73.

Beneficiary* – is an individual who is entitled to a benefit (including the plan member and dependants).

Benefit* – is a payment made to a pension fund member (or dependants) after retirement.

Bonds – are instruments that recognize a debt. Although they deliver the same utility as bank loans, i.e., enabling the temporary transfer of capital from one person to another, with or without a price (interest) attached, bonds can also be issued by non-financial institutions (States, companies) and by financial non-banking institutions (asset management companies). In essence, bonds are considered more stable (the risk of default is lower) and in theory deliver a lower, but fixed, rate of profit. Nevertheless, Table EX2 of the Executive Summary shows that the aggregated European Bond Index highly overperformed the equity one.

Closed pension funds* – are the funds that support only pension plans that are limited to certain employees. (e.g., those of an employer or group of employers).

Collective investment schemes – are financial products characterised by the pooling of funds (money or asset contributions) of investors and investing the total into different assets (securities) and managed by a common asset manager. Under E.U. law collective investment schemes are regulated under 6 different legal forms: UCITS (see below), the most common for individual investors; AIFs (see above), European Venture Capital funds (EuVECA), European Long-Term Investment Funds (ELTIFs), European Social Entrepreneurship Funds (ESEF) or Money Market Funds.[290]

Contribution* – is a payment made to a pension plan by a plan sponsor or a plan member.

Contribution base* – is the reference salary used to calculate the contribution.

Contribution rate* – is the amount (typically expressed as a percentage of the contribution base) that is needed to be paid into the pension fund.

Contributory pension scheme* – is a pension scheme where both the employer and the members have to pay into the scheme.

Custodian* – is the entity responsible, as a minimum, for holding the pension fund assets and for ensuring their safekeeping.

Deferred member* – is a pension plan member that no longer contributes to or accrues benefits from the plan but has not yet begun to receive retirement benefits from that plan.

Deferred pension* – is a pension arrangement in which a portion of an employee's income is paid out at a date after which that income is actually earned.

Defined benefit (DB) occupational pension plans* – are occupational plans other than defined contributions plans. DB plans generally can be classified into one of three main types, "traditional", "mixed" and "hybrid" plans. These are schemes where "the pension payment is defined as a percentage of income and employment career. The employee receives a thus pre-defined pension and does not bear the risk of longevity and the risk of investment. Defined

[290] See European Commission, 'Investment Funds' (28 August 2019) https://ec.europa.eu/info/business-economy-euro/growth-and-investment/investment-funds_en.

Benefits schemes may be part of an individual employment contract or collective agreement. Pension contributions are usually paid by the employee and the employer".[291]

"Traditional" DB plan* – is a DB plan where benefits are linked through a formula to the members' wages or salaries, length of employment, or other factors.

"Hybrid" DB plan* – is a DB plan where benefits depend on a rate of return credited to contributions, where this rate of return is either specified in the plan rules, independently of the actual return on any supporting assets (e.g. fixed, indexed to a market benchmark, tied to salary or profit growth, etc.), or is calculated with reference to the actual return of any supporting assets and a minimum return guarantee specified in the plan rules.

"Mixed" DB plan* – is a DB plans that has two separate DB and DC components, but which are treated as part of the same plan.

Defined contribution (DC) occupational pension plans* – are occupational pension plans under which the plan sponsor pays fixed contributions and has no legal or constructive obligation to pay further contributions to an ongoing plan in the event of unfavourable plan experience. These are schemes where "the pension payment depends on the level of defined pension contributions, the career and the returns on investments. The employee has to bear the risk of longevity and the risk of investment. Pension contributions can be paid by the employee and/or the employer and/or the state".[292]

Dependency ratio* – are occupational pension plans under which the plan sponsor pays fixed contributions and has no legal or constructive obligation to pay further contributions to an ongoing plan in the event of unfavourable plan experience.

Early retirement* – is a situation when an individual decides to retire earlier later and draw the pension benefits earlier than their normal retirement age.

Economic dependency ratio* – is the division between the number of inactive (dependent) population and the number of active (independent or contributing) population. It ranges from 0% to 100% and it indicates how much of the inactive population's (dependent) consumption is financed from the active population's (independent) contributions.[293] In general, the inactive (dependent) population is represented by children, retired persons and persons living on social benefits.

EET system* – is a form of taxation of pension plans, whereby contributions are exempt, investment income and capital gains of the pension fund are also exempt, and benefits are taxed from personal income taxation.

[291] Werner Eichhorst, Maarten Gerard, Michael J. Kendzia, Christine Mayrhruber, Connie Nielsen, Gerhard Runstler, Thomas Url, 'Pension Systems in the EU: Contingent Liabilities and Assets in the Public and Private Sector' EP Directorate General for Internal Policies IP/A/ECON/ST/2010-26.
[292] Ibid.
[293] For more detail on the concept, see Elke Loichinger, Bernhard Hammer, Alexia Prskawetz, Michael Freiberger, Joze Sambt, 'Economic Dependency Ratios: Present Situation and Future Scenarios' MS13 Policy Paper on Implications of Population Ageing for Transfer Systems, Working Paper no. 74, 18th December 2014, 3.

Equity (or stocks/shares) – are titles of participation to a publicly listed company's economic activity. With regards to other categorizations, an equity is also a security, a financial asset or, under E.U. law, a transferable security.[294]

ETE system* – is a form of taxation whereby contributions are exempt, investment income and capital gains of the pension fund are taxed, and benefits are also exempt from personal income taxation.

ETF(s) – or Exchange-Traded Funds are investment funds that are sold and bought on the market as an individual security (such as shares, bonds). ETFs are structured financial products, containing a basket of underlying assets, and are increasingly more used due to the very low management fees that they entail.

Fund member* – is an individual who is either an active (working or contributing, and hence actively accumulating assets) or passive (retired, and hence receiving benefits), or deferred (holding deferred benefits) participant in a pension plan.

Funded pension plans* – are occupational or personal pension plans that accumulate dedicated assets to cover the plan's liabilities.

Funding ratio (funding level) * – is the relative value of a scheme's assets and liabilities, usually expressed as a percentage figure.

Gross rate of return* – is the rate of return of an asset or portfolio over a specified time period, prior to discounting any fees of commissions.

Gross/net replacement rate – is the ratio between the pre-retirement gross or net income and the amount of pension received by a person after retirement. The calculation methodology may differ from source to source as the average working life monthly gross or net income can used to calculate it (divided by the amount of pension) or the past 5 year's average gross income etc. (see below **OECD net replacement rate**).

Group pension funds* – are multi-employer pension funds that pool the assets of pension plans established for related employers.

Hedging and hedge funds – while hedging is a complex financial technique (most often using derivatives) to protect or reduce exposure to risky financial positions or to financial risks (for instance, currency hedging means reducing exposure to the volatility of a certain currency), a hedge fund is an investment pool that uses complex and varying investment techniques to generate profit.

Indexation* – is the method with which pension benefits are adjusted to take into account changes in the cost of living (e.g., prices and/or earnings).

Individual pension plans* – is a pension fund that comprises the assets of a single member and his/her beneficiaries, usually in the form of an individual account.

[294] Article 4(44) of Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU, OJ L 173, p. 349–496 (MiFID II).

Industry pension funds* – are funds that pool the assets of pension plans established for unrelated employers who are involved in the same trade or businesses.

Mandatory contribution* – is the level of contribution the member (or an entity on behalf of the member) is required to pay according to scheme rules.

Mandatory occupational plans* – Participation in these plans is mandatory for employers. Employers are obliged by law to participate in a pension plan. Employers must set up (and make contributions to) occupational pension plans which employees will normally be required to join. Where employers are obliged to offer an occupational pension plan, but the employees' membership is on a voluntary basis, these plans are also considered mandatory.

Mandatory personal pension plans* - are personal plans that individuals must join, or which are eligible to receive mandatory pension contributions. Individuals may be required to make pension contributions to a pension plan of their choice normally within a certain range of choices or to a specific pension plan.

Mathematical provisions (insurances) – or *mathematical reserves* or *reserves*, are the value of liquid assets set aside by an insurance company that would be needed to cover all current liabilities (payment obligations), determined using actuarial principles.

Minimum pension* – is the minimum level of pension benefits the plan pays out in all circumstances.

Mixed indexation* – is the method with which pension benefits are adjusted taking into account changes in both wages and prices.

Money market instruments – are short-term financial products or positions (contracts) that are characterized by the very high liquidity rate, such as deposits, short-term loans, repo-agreements and so on.

MTF – multilateral trading facility, is the term used by the revised Markets in Financial Instruments Directive (MiFID II) to designate securities exchanges that are not a regulated market (such as the London Stock Exchange, for example).

Multi-employer pension funds* – are funds that pool the assets of pension plans established by various plan sponsors. There are three types of multi-employer pension funds:

a) for related employers i.e., companies that are financially connected or owned by a single holding group (group pension funds);

b) for unrelated employers who are involved in the same trade or business (industry pension funds);

c) for unrelated employers that may be in different trades or businesses (collective pension funds).

Money-Weighted Returns (MWR) - also referred to as the internal rate of return, is a measurement of performance that takes into account cash flows (contributions) when calculating returns.

NAV – Net Asset Value, or the amount to which the market capitalisation of a financial product (for this report, pension funds' or insurance funds' holdings) or a share/unit of it arises at a given point. In general, the Net Asset Value is calculated per unit or share of a collective investment scheme using the daily closing market prices for each type of security in the portfolio.

Net rate of return* – is the rate of return of an asset or portfolio over a specified time period, after discounting any fees of commissions.

Normal retirement age* – is the age from which the individual is eligible for pension benefits.

Non-contributory pension scheme* – is a pension scheme where the members do not have to pay into scheme.

Occupational pension plans* – access to such plans is linked to an employment or professional relationship between the plan member and the entity that establishes the plan (the plan sponsor). Occupational plans may be established by employers or groups of thereof (e.g., industry associations) and labour or professional associations, jointly or separately. The plan may be administrated directly by the plan sponsor or by an independent entity (a pension fund or a financial institution acting as pension provider). In the latter case, the plan sponsor may still have oversight responsibilities over the operation of the plan.

Eurostat aggregate replacement rate for pensions refers to median individual pension income of population aged 65-74 relative to median individual earnings from work of population aged 50-59, excluding other social benefits.

Old-age dependency ratio - defined as the ratio between the total number of elderly persons when they are generally economically inactive (aged 65 and above) and the number of persons of working age.[295] It is a sub-indicator of the economic dependency ratio and focuses on a country's public (state) pension system's reliance on the economically active population's pensions (or social security) contributions. It is a useful indicator to show whether a public (Pillar I) pension scheme is under pressure (when the ratio is high, or the number of retirees and the number of workers tend to be proportionate) or relaxed (when the ratio is low, or the number of retirees and the number of workers tend to be disproportionate). For example, a low old-age dependency ratio is 20%, meaning that 5 working people contribute for one retiree's pension.

Open pension funds* – are funds that support at least one plan with no restriction on membership.

Pension assets* – are all forms of investment with a value associated to a pension plan.

Pension fund administrator* – is(are) the individual(s) ultimately responsible for the operation and oversight of the pension fud.

Pension fund governance* – is the operation and oversight of a pension fund. The governing body is responsible for administration, but may employ other specialists, such as actuaries,

[295] See Eurostat definition: http://ec.europa.eu/eurostat/web/products-datasets/product?code=tsdde511.

custodians, consultants, asset managers and advisers to carry out specific operational tasks or to advise the plan administration or governing body.

Pension fund managing company* – is a type of administrator in the form of a company whose exclusive activity is the administration of pension funds.

Pension funds* – the pool of assets forming an independent legal entity that are bought with the contributions to a pension plan for the exclusive purpose of financing pension plan benefits. The plan/fund members have a legal or beneficial right or some other contractual claim against the assets of the pension fund. Pension funds take the form of either a special purpose entity with legal personality (such as a trust, foundation, or corporate entity) or a legally separated fund without legal personality managed by a dedicated provider (pension fund management company) or other financial institution on behalf of the plan/fund members.

Pension insurance contracts* – are insurance contracts that specify pension plans contributions to an insurance undertaking in exchange for which the pension plan benefits will be paid when the members reach a specified retirement age or on earlier exit of members from the plan. Most countries limit the integration of pension plans only into pension funds, as the financial vehicle of the pension plan. Other countries also consider the pension insurance contract as the financial vehicle for pension plans.

Pension plan* – is a legally binding contract having an explicit retirement objective (or – in order to satisfy tax-related conditions or contract provisions – the benefits cannot be paid at all or without a significant penalty unless the beneficiary is older than a legally defined retirement age). This contract may be part of a broader employment contract, it may be set forth in the plan rules or documents, or it may be required by law. In addition to having an explicit retirement objective, pension plans may offer additional benefits, such as disability, sickness, and survivors' benefits.

Pension plan sponsor* – is an institution (e.g., company, industry/employment association) that designs, negotiates, and normally helps to administer an occupational pension plan for its employees or members.

Pension regulator* – is a governmental authority with competence over the regulation of pension systems.

Pension supervisor* – is a governmental authority with competence over the supervision of pension systems.

Personal pension plans* - Access to these plans does not have to be linked to an employment relationship. The plans are established and administered directly by a pension fund or a financial institution acting as pension provider without any intervention of employers. Individuals independently purchase and select material aspects of the arrangements. The employer may nonetheless make contributions to personal pension plans. Some personal plans may have restricted membership.

Private pension funds* – is a pension fund that is regulated under private sector law.

Private pension plans* – is a pension plan administered by an institution other than general government. Private pension plans may be administered directly by a private sector employer acting as the plan sponsor, a private pension fund or a private sector provider. Private pension plans may complement or substitute for public pension plans. In some countries, these may include plans for public sector workers.

Public pension plans* – are pensions funds that are regulated under public sector law.

Public pension plans* – are the social security and similar statutory programmes administered by the general government (that is central, state, and local governments, as well as other public sector bodies such as social security institutions). Public pension plans have been traditionally PAYG financed, but some OECD countries have partial funding of public pension liabilities or have replaced these plans by private pension plans.

Rate of return* – is the income earned by holding an asset over a specified period.

REIT(s) or Real Estate Investment Trust(s) is the most common acronym and terminology used to designate special purpose investment vehicles (in short, companies) set up to invest and commercialise immovable goods (real estate) or derived assets. Although the term comes from the U.S. legislation, in the E.U. there are many forms of REITs, depending on the country since the REIT regime is not harmonised at E.U. level.

Replacement ratio* – is the ratio of an individual's (or a given population's) (average) pension in a given time period and the (average) income in a given time period.

Service period* – is the length of time an individual has earned rights to a pension benefit.

Single employer pension funds* – are funds that pool the assets of pension plans established by a single sponsor.

Summary Risk Reward Indicator - a measurement developed by the European Securities and Markets Authority (former CESR) to be included in the Key Investor Information Document (KIID) for UCITS (undertakings for collective investment in transferable securities) to reflect the risk profile of a certain fund.

Supervisory board* – is(are) the individual(s) responsible for monitoring the governing body of a pension entity.

System dependency ratio* – typically defined as the ratio of those receiving pension benefits to those accruing pension rights.

TEE system* – is a form of taxation of pension plans whereby contributions are taxed, investment income and capital gains of the pension fund are exempt, and benefits are also exempt from personal income taxation.

Time-Weighted Returns (TWR) - is the standard method of calculating returns (and performance) of an investment and simply represents the growth/decrease in value without incorporating the distorting effects of cash inflows and outflows (for pensions, that means contributions and

Trust* – is a legal scheme, whereby named people (termed trustees) hold property on behalf of other people (termed beneficiaries).

Trustee* – is a legal scheme, whereby named people (termed trustees) hold property on behalf of other people (termed beneficiaries).

UCITS – or Undertakings for Collective Investment in Transferable Securities, is the legal form under E.U. law for mutual investment funds that are open to pool and invest funds from any individual or institutional investor, and are subject to specific authorisation criteria, investment limits and rules. The advantage of UCITS is the general principle of home-state authorisation and mutual recognition that applies to this kind of financial products, meaning that a UCITS fund established and authorised in one E.U. Member State can be freely distributed in any other Member State without any further formalities (also called *E.U. fund passporting*).

Unfunded pension plans* – are plans that are financed directly from contributions from the plan sponsor or provider and/or the plan participant. Unfunded pension plans are said to be paid on a current disbursement method (also known as the pay as you go, PAYG, method). Unfunded plans may still have associated reserves to cover immediate expenses or smooth contributions within given time periods. Most OECD countries do not allow unfunded private pension plans.

Unprotected pension plan* – is a plan (personal pension plan or occupational defined contribution pension plan) where the pension plan/fund itself or the pension provider does not offer any investment return or benefit guarantees or promises covering the whole plan/fund.

Voluntary contribution – is an extra contribution paid in addition to the mandatory contribution a member can pay to the pension fund in order to increase the future pension benefits.

Voluntary occupational pension plans - The establishment of these plans is voluntary for employers (including those in which there is automatic enrolment as part of an employment contract or where the law requires employees to join plans set up on a voluntary basis by their employers). In some countries, employers can on a voluntary basis establish occupational plans that provide benefits that replace at least partly those of the social security system. These plans are classified as voluntary, even though employers must continue sponsoring these plans in order to be exempted (at least partly) from social security contributions.

Voluntary personal pension plans* – Participation in these plans is voluntary for individuals. By law individuals are not obliged to participate in a pension plan. They are not required to make pension contributions to a pension plan. Voluntary personal plans include those plans that individuals must join if they choose to replace part of their social security benefits with those from personal pension plans.

Wage indexation* – is the method with which pension benefits are adjusted taking into account changes in wages.

Waiting period* – is the length of time an individual must be employed by a particular employer before joining the employer's pension scheme.

Winding-up* – is the termination of a pension scheme by either providing (deferred) annuities for all members or by moving all its assets and liabilities into another scheme.

World Bank multi-pillar model – is the recommended design, developed by the World Bank in 1994, for States that had pension systems inadequately equipped to (currently and forthcoming) sustain a post-retirement income stream for future pensioners and alleviate the old-age poverty risk. Simpler, it is a set of guidelines for States to either enact, reform or gather legislation regulating the state pension and other forms of retirement provisions in a form that would allow an increased workers' participation, enhance efficiency for pension savings products and a better allocation of resources under the principle of solidarity between generations.

The standard design of a robust pension system would rely on five pillars:

a) the non-contributory scheme (pillar 0), through which persons who do not have an income or do not earn enough would have insured a minimum pension when reaching the standard retirement age;

b) the public mandatory, Pay-As-You-Go (PAYG) scheme (**Pillar I**), gathering and redistributing pension contributions from the working population to the retirees, while accumulating pension rights (entitlements) for the future retirees;

c) the mandatory funded and (recommended) privately managed scheme (**Pillar II**), where workers' contributions are directed to their own accumulation accounts in privately managed investment products;

d) the voluntary privately managed retirement products (**Pillar III**), composed of pension savings products to which subscription is universal, contributions and investments are deregulated and tax-incentivised;

e) the non-financial alternative aid scheme (pillar IV), through which the state can offer different forms of retirement support – such as housing or family support. Albeit the abovementioned, the report focuses on the "*main pillars*", i.e., Pillar I, II and III, since they are the most significant (and present everywhere) in the countries that have adopted the multi-pillar model.

Definitions with "*" are taken from OECD's Pensions Glossary - http://www.oecd.org/daf/fin/private-pensions/38356329.pdf.

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