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TECHNICAL NOTE ON NON-BANK FINANCIAL INTERMEDIATION AND PENSION INSURANCE COMPANIES

February 2023

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TECHNICAL NOTE

NON-BANK FINANCIAL INTERMEDIATION AND PENSION INSURANCE COMPANIES

Approved By

Prepared By
Monetary and Capital Markets Department

This Technical Note was prepared by IMF staff in the context of the Financial Sector Assessment Program that visited Finland in March 23-April 13, 2022. It contains technical analysis and detailed information underpinning the FSAP's findings and recommendations. Further information on the FSAP can be found at http://www.imf.org/external/np/fsap/fssa.aspx

CONTENTS

Glossary 4

EXECUTIVE SUMMARY 4

INTRODUCTION 8

THE NBFI SECTOR IN FINLAND 8
A. Approach to Regulation and Supervision 11
B. Regulation and Supervision of Pensions and Insurance 12
C. Regulation and Supervision of Investment Funds 14

RISKS TO THE NBFI SECTOR 15
A. Macroprudential Policy and NBFI 15
B. Regulation and Supervision 16
C. Other Risks and Vulnerabilities 19

THE PENSION INSURANCE COMPANIES 22
A. The Role of the PICs in the Finnish Pension System 22
B. The Pension Insurance Company Market 24
C. Legislation, Regulation, and the Impact of Solvency Rules 27

PENSION INSURANCE INVESTMENT STRATEGY 31
A. Home Bias and International Return Comparisons 33
B. PIC Equity Investment: Cyclicality and Correlation 34
C. Alternative Approaches to Long-Run Defined Benefit Liabilities 36

FIGURES
1. Insurance and Pension Asset Allocation 2013–22 10
2. Supervisory Process and Quarterly Heat Map 11
3. The Finnish Pension System 22
4. PIC Asset Allocation and Asset Returns 26
5. Correlation Matrix for Risk-Based Capital 30
6. Investment Allocation of PICs Compared to Other Pension Funds 2012–22 32
7. Investments by Country 2012–22 34
8. Exposure and Return: Listed Equities 2010–22 35
9. Pairwise Correlation in Equity Investment 35
10. Cyclicality of Equity Investment 36
11. Comparison of Fund Returns: Finland and New Zealand 37

TABLES
1. Recommendations on Non-Bank Financial Intermediation 7
2. Size of the Financial System Including NBFI, end-2021 9
3. Location of Investment Fund Investments, end December 2021 9
4. Unit Linked Business 2016–2021 As Percent of Total Solvency II Technical Provisions 18
5. Assets Under Management and relative size of PICs and public pension funds 25
6. Solvency Data on the Pension Insurance Companies, 2021 29

BOX
1. Risks in the Pension Sector—the Views of the Pension Insurance Companies 21

APPENDIX
I. Pandemic Measures by the Finnish Government 39

Glossary

AIFMD	Alternative Investment Fund Managers Directive
AUM	Assets Under Management
BoF	Bank of Finland
DB	Defined Benefit
ECB	European Central Bank
EIOPA	European Insurance and Occupational Pensions Authority
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
ETK	Finnish Centre for Pensions
EU	European Union
FIN-FSA	Finnish Financial Supervisory Authority
FSSA	Financial System Stability Assessment
FSAP	Financial Sector Assessment Program
GDP	Gross Domestic Product
GFC	Global Financial Crisis
IAIS	International Association of Insurance Supervisors
IDD	Insurance Distribution Directive (EU)
IMF	International Monetary Fund
IOPS	International Organization of Pension Supervisors
IOSCO	International Organization of Securities Commissions
JuEL	Public Sector Pensions Act
KELA	National Pension Administrator
KEVA	Local Government Pension Fund
MEL	Seafarer's Pension Act
MiFID II	Markets in Financial Instruments II (EU)
MoF	Ministry of Finance
MoSAH	Ministry of Social Affairs and Health
MEL	Farmers' Pension Act
NBFI	Non-Bank Financial Intermediation
OECD	Organization for Economic Cooperation and Development
PAYG	Pay As You Go
PIC	Pension Insurance Company
RVV	Financial Stability Authority
SFDR	Sustainable Finance Disclosure Regulation (EU)
TELA	The Finnish Pension Alliance
TyEL	Employees Pensions Act
UCITS	Undertakings for the Collective Investment in Transferable Securities (EU)
VER	State Pension (Buffer) Fund Finland
YEL	Self-Employed Persons' Pension Act

EXECUTIVE SUMMARY

This note evaluates non-bank financial institutions (NBFI) as a sector in Finland, with a special focus on the pension insurance companies (PIC). The analysis was undertaken against the backdrop of the war in Ukraine, the energy crisis, and rising central bank interest rates in the face of a sustained inflationary surge and the aftermath of the COVID-19 pandemic.

Pensions, including the pension insurance companies (PICs) and fund managers, are the most significant parts of the NBFI sector, followed by insurance. Each industry is highly concentrated, often with significant links to major banking groups. The 'statutory earnings related' pensions in the private sector had EUR 161 billion in assets, with the bulk in the PICs. Earnings-related plans for public sector workers and specialized regimes have EUR 94 billion in assets. Total insurance assets were EUR 89.6 billion—with EUR 73.0 billion in life and EUR16.6 billion in nonlife insurance. The total fund management sector had EUR 180.0 billion in assets at end-2021.

The NBFI sector has faced fewer challenges during the COVID-19 and the war in Ukraine than during the global financial crisis (GFC). This is partly attributed to improved risk management practices, lower customer withdrawals, and for some fund and life insurance companies, an increase in demand for savings products during the pandemic. From a market perspective, it has also been helped by the rapid recovery of major asset markets after the first quarter of 2020, and an exceptionally strong year for investments in 2021. These events significantly boosted the capital position of the insurers and PICs ahead of the negative shocks in the first half of 2022 and total assets under management (AUM) to EUR 180 billion in funds.

Nevertheless, the COVID-19 pandemic caused liquidity issues with suspensions in funds with total assets of EUR 3.5 billion. In addition to COVID-19 suspensions, the small number of investment funds focused on Russia were suspended and subsequently closed, with a consequent impact on funds in which they were sub-funds. However, their management companies were able to take the lead on temporary suspensions which are now permitted in the regulations, in contrast to the GFC and 9/11 crises when the Finnish Financial Supervisory Authority (FIN-FSA) needed to order or approve suspensions. The FIN-FSA conducted a useful review of liquidity lessons from the crisis, whose recommendations should be implemented. Beyond the Russian fund suspensions, no other cross-border impacts for NBFI were identified causing concerns in relation to liquidity or the ability to price funds.

Market participants value their relationship with the FIN-FSA, particularly during crisis periods, but noted that extra resources and expertise would be useful for the NBFI sector. The pace of new regulation, driven primarily from the European Union (EU), is creating significant costs and uncertainty for the sector. The faster the FIN-FSA can create national regulations, and the more support FIN-FSA can offer to firms, the better it will be for the core businesses of the NBFI sector. In addition, the FIN-FSA should publish a detailed annual supervisory plan that helps the industry prepare better for the many regulatory changes and EU Common Supervisory Actions.

The insurance sector has strong solvency overall. With high profitability in the non-life sector as COVID-19 reduced claims, strong asset returns in 2021, and rising interest rates in 2022, insurers' liabilities are declining even while asset markets fall. Despite extensive short-term risks, rising solvency because of interest rate increases creates a potentially misleading signal for the strength of the sector. It is important for the firms and FIN-FSA to look at appropriate dividend policy in the coming years. While solvency levels are healthy, insurers are vulnerable to a sharp reversal in interest rates, further falls in equity markets, or a local real estate correction which some market participants deem likely. High profits and relatively high charges from investment funds and unit-linked life insurance products, indicate conduct of business risks exceed prudential risks.

FIN-FSA's macroprudential strategy now includes the NBFI sector, but there is little published material from the Bank of Finland (BoF) or FIN-FSA on these issues. However, there is insightful internal analysis already which should be published proactively as well as developed further. One issue that has not been investigated in the market and by the authorities is the potential for a domino effect triggered by the war in Ukraine: while initial exposures could be limited, a fund or insurer could have exposure to energy companies, banks with major loans to energy companies, construction companies focused on the energy sector and firms with very high energy demands.

Additional forward guidance is requested by the market on the EU Sustainable Finance Disclosure Regulations (SFDR) along with dialogue with ESMA and EU to ease implementation during the current stressed market conditions. The NBFI sector and FIN-FSA are committed to enhancing the alignment of finance with environmental considerations. This is due to the potential impact on claims and asset returns, and the views of customers and the historic commitment in Finland to environmental issues. While a strong lead has been taken by the largest PICs, access to good quality data providing clear investment signals is challenging, with potential FIN-FSA regulatory forbearance useful in the near term.

Pension Insurance Companies

The PICs are part of the mandatory social security system, with a role to invest assets to partly fund the system. Their role is very significant because an increase of 1 percent in real returns on their EUR 160 billion assets is equivalent to 2 percent of wages in contributions. Hence, their core purpose is related to long-run funding and stability of the social security system, in contrast to a role simply to provide extra pension savings that is often associated with pension insurance companies. Being part of the social security system means PICs are not subject to the EU Occupational Pension Directive (IORPII), or the EU Insurance Directive (Solvency II). This gives the Government of Finland and FIN-FSA a high degree of freedom in the domestic regulatory framework not found in the rest of the NBFI sector.

The performance of the PICs has generally mirrored the relatively positive NBFI response to the severe shocks from COVID-19 and the war in Ukraine. There were particularly strong average PIC returns in 2021 (+16 percent), and although PIC assets fell in the first half of 2022 (-6 percent), this is not a stability issue. The PIC model does not have individual customers who can sell assets, although the ability of employers to borrow against their contributions should be limited further or removed. Transfers by employers to a new provider only affect new

contributions and not the existing stock. In addition, the PICs are part of an open mandatory pension system with close to 25 percent of wages paid each month and a long-term mission to generate sufficient returns so that asset growth can help offset the costs of demographic change.

Over the last 20 years, the sector has generated decent investment returns with sensible diversification away from Finland and to higher yielding illiquid assets like real estate, private equity, and higher quality hedge funds, consistent with the profile of long-term liabilities. However, investment performance is lower than regional comparators, and is lower between 1998-2021 (and particularly 1998–2017) than the local government fund which has been able to invest through downturns without any pressure from short-term solvency rules.

The FSAP analysis reveals a history of procyclical and herding behavior in the PIC portfolios due to the substance and perception of the solvency regulations, which drive the behavior of market participants. Major PICs have acquired or sold listed equity in a highly correlated manner, and the correlation between them now surpasses 80 percent. As investment restrictions on the PICs have been loosened (in 2014 and 2017) while retaining the 1-year solvency focus, the PIC investment allocation has become more similar to that of public pension funds, with greater than 90 percent correlation since 2015. In the past, while public pension funds have been able to invest countercyclically during periods of decline in equity markets, this has not been the case for the PICs as a whole who have often pro-cyclically sold equities in response to negative shocks between 1999–2017.

Even though the 2017 reforms to Solvency regulations for PICs appear to have reduced procyclicality, market participants still see an impact, and the regulations remain too focused on the short-term to the detriment of long-run performance. Discussion on further reforms to the 2017 solvency laws should focus on enhancing the long-term purpose of the PICs to generate returns—to the benefit of all social partners and Finnish citizens. Even though liquidity risks are low, a liquidity regulation should be developed so that PICs have sufficient buffers for extreme events.

The PICs are jointly liable for all their pension payments and the authorities should run crisis simulation exercises of a large PIC failure. Some smaller PICs have been successfully amalgamated into the remaining four PICs over the years. But the 'failure' of a major PIC has not happened. The crisis simulation should cover the policy response, impact on financial markets, the required funding response as well as the operational implications. It could usefully draw upon work by the resolution authority, the Financial Stability Authority (RVV), in relation to insurance companies.

The FIN-FSA has limited resources for supervision of the PICs—who need regular on-site and off-site supervision of governance, investment and operations given their size. Updating the solvency regime would reduce the resources and complexity of short-term scrutiny of solvency. Resources should also be rebalanced from low-risk issues such as registrations and detailed technical advice on by-law changes for small non-PIC Pension Funds. FIN-FSA resources should have allowed deeper and more intensive supervision of a PIC with governance issues rather than only being significantly escalated after a provider triggered a solvency limit.

Table 1. Finland: Recommendations on Non-Bank Financial Intermediation

Recommendations		Agency	Time[1]
1	Amend PIC solvency regulations to remove remaining procyclical effects and develop new short-term liquidity rules.	MoSAH FIN-FSA	NT
2	Publish an annual supervisory plan for the NBFI sector to aid planning and regulatory certainty for the industry.	FIN-FSA	I
3	Enhance the public disclosure of analysis and assessment of macroprudential risks in the NBFI sector.	BoF FIN-FSA	I
4	Reduce resources devoted to low-risk issues including detailed technical advice and registrations for non-PIC pension funds and pension foundations to free resources for higher risk areas.	FIN-FSA	I
5	Continued forward guidance is required on the timing and specific actions in relation to the EU SFDR along with dialogue with ESMA and at EU level to ease the implementation during the current stressed market conditions.	FIN-FSA	I
6	Consult on an increase in fees to enhance resources to supervise the NBFI sector, which appear to be too low.	MoF FIN-FSA	NT
8	Enhance market intelligence in relation to NBFI trading (including on a daily basis) to better understand and monitor crisis experiences to augment the successful supervisory dialogue with regulated entities during periods of stress.	BoF NBFI	NT
9	Take a more proactive role on total costs given the significant fee levels in the fund sector, in unit-linked insurance and given very large nonlife insurance profits.	FIN-FSA	NT
10	Conduct a crisis simulation for the orderly resolution of a major PIC, involving FIN-FSA, the Ministry of Social Affairs and Health (MoSAH), the Ministry of Finance (MoF), and BoF, and drawing on the expertise of the RVV and ensure any necessary legislative and regulatory changes required are made.	FIN-FSA MoSAH ETK RVV	MT
11	The Finnish Centre for Pensions (ETK) should conduct a cyber risk crisis simulation with the PICs, KEVA, and the National Pension Administrator (KELA).	ETK, PICs KEVA	NT

[1] I = Immediate (within one year); NT = Near Term (within 1 to 3 years); MT=Medium Term (within 3 to 5 years).

INTRODUCTION[1]

1. This note reviews the risks to stability from the NBFI sector in Finland, with a particular focus on the pension insurance companies (PICs). Experience during the recent COVID-19 pandemic and the war in Ukraine provides a window into the robustness of risk and liquidity management in the sector during times of stress. The low interest environment since the global financial crisis, and its unwinding in the current inflationary environment, provides the backdrop for the performance of the NBFI sector in recent years.

2. Given the large share of NBFI assets within the pension sector, the note takes a deeper look into the private sector providers, the PICs. It looks at investment strategies, the impact of solvency rules on procyclical behavior and their relative long-run performance. The Technical Note (TN) is not intended to investigate the long-run sustainability issues for the Finnish pension system. However, it highlights how the long-term purpose should drive the reform of the short-term solvency rules and supervisory approach. This long-term purpose is to invest assets to generate returns that will help to reduce the costs of demographic change and hence reduce pressure for increased contributions from employers and workers, or changes to reduce the relative value of benefits. The PICs share joint liability, so they have a collective role in funding the share of pension benefits for which they are responsible. This means the PICs have a different role to a typical insurance company providing savings or annuities customer-by-customer or a pension fund responsible just for its own operations.

3. The TN examines the regulatory and supervisory structure at a high-level and makes recommendations to enhance the arrangements. However, it does not complete a standards-based assessment on insurance, investment fund or pensions.[2] Key issues include the sufficiency of supervisory resources, transparency in supervisory views and plans in addition to analysis of the impact of different risks to each part of the NBFI sector.

4. The analysis of life and nonlife insurance and fund management sectors reviews common and specific risks, in a regulatory environment dominated by EU regulation. Key issues include the recent experience on liquidity and the need for fund suspensions, consumer behavior compared to previous crises and the impact of increased regulatory and consumer demands for sustainability reporting. The solvency position of the insurance sector is also a key focus, as well as cross cutting risks such as on cyber security and environment, social and governance (ESG) issues.

THE NBFI SECTOR IN FINLAND

5. Pension insurance companies (PICs) and fund management are the most significant parts of the NBFI sector, followed by insurance. Each industry is highly concentrated. As set out in Table 2, the 'statutory earnings related' pension for private sector workers had EUR 161 billion, with the bulk in the PICs. Earnings-related plans for public sector worker plans and

[1] This Technical Note was prepared by William Price (STX) and Seyed Reza Yousefi (European Department, IMF).

[2] This review was not intended to conduct a formal review of regulatory and supervisory standards using either the International Association of Insurance Supervisors (IAIS), the Organisation for Economic Cooperation and Development (OECD)/International Organization of Pension Supervisors (IOPS) or International Organization of Securities Commissions (IOSCO) standards and principles.

specialized regimes are also significant, with a total of EUR 94 billion in assets. Total insurance assets were EUR 89.6 billion—with EUR 73.0 billion in life and EUR 16.6 billion in nonlife insurance. The total fund management sector had EUR 180.0 billion in assets at end-2021.

Table 2. Finland: Size of the Financial System Including NBFI, end-2021

	Euro (in billions)	GDP Share (in percent)
Fund Management	180	72
Insurance		
Life	73.0	29
Nonlife	16.6	7
Pension Insurance Companies PICs*	161	64
Public Sector and specialized earnings-related pensions	94	37
Banking sector (consolidated)	870.4	346
Stock market capitalization	346	138

Source: FIN-FSA, Bank of Finland, Statistics Finland
* Earnings related pensions in the private sector include PICs as well as a small number of small Pension Fund and Foundations

6. The top four providers in each NBFI sector typically have 80 percent market share, and 100 percent in the PIC market where only four providers now remain. The pension sector is dominated by mutuals in the private sector and public sector not for profit institutions. Insurance has a mixture of mutual and for-profit corporate providers who sometimes have different pricing strategies as a result.

7. Overall, 34 percent of assets in the fund management sector are invested in Finland and a further 23 percent in other Euro area countries making 57 percent of assets within the Euro area (see Table 3). Twelve percent is in the non-Euro/European Union (EU) subject to the same regulatory framework. 7 percent is in the non-EU Europe, making 76 percent into total invested in Europe. By far the largest location outside Europe is North and South America, with 18 percent of total investment, with exposure to South and East Asia quite limited.

Table 3. Finland: Location of Investment Fund Investments, end-December 2021

Country group	Country sub-group	Assets (in millions of EUR)	Assets (as percent GDP)
Domestic	Finland	61,235	34
Other monetary union	Other EUR area	41,458	23
Rest of the world	Africa	633	0
	Asia	7, 588	4
	Europe (Non-EU)	13,278	7
	International orgs	206	0
	North & South America	32,257	18
	Oceania	707	0
	Non-EUR (EU area)	21,497	12
Not defined	Not defined	1,197	1
Total		**180 057**	**100**

Source: Bank of Finland.

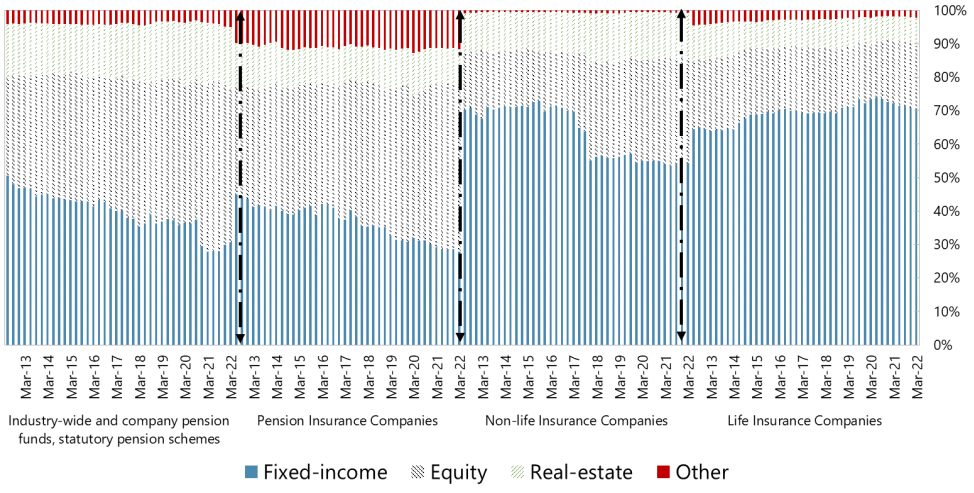
8. At end-2021 there were 47 Finnish Insurers licensed by FIN-FSA, with 9 life insurers, 34 in nonlife, and 4 PICs. There were 19 branches operated in Finland by foreign insurers.[3] The 4 PICs are Ilmarinen, Varma, Elo, and Veritas, with two of them among the top 25 largest pension funds in Europe.

9. Solvency in all parts of the insurance sector is strong, particularly after high investment returns in 2021. For life insurance it actually strengthened slightly in the first half of 2022 as rising interest rates offset the impact of poor investment returns.[4]

10. The investment allocation of the life and nonlife Insurance companies has diverged increasingly over the past ten years. As shown in Figure 1, life insurers have kept broadly 65-70 percent of their assets in fixed income securities, with around 20 percent in equity and around 8 percent in real estate. Nonlife insurers cut their allocation to fixed income from 70 percent in 2013 to around 55 percent by 2017 after which is has remained broadly stable at this level. The gap was filled with an increased allocation to equities, which is now up to 30 percent, plus a smaller rise in real-estate which is now close to 10 percent of total investments.

11. The PICs and the smaller company and industry pension funds have seen a continuous shift in the past 10 years from fixed income to equity, with a continuation of significant allocations to real estate. This has shifted the asset allocation in the PICs from around 40 percent in fixed income in 2013 (already substantially lower than the life and nonlife insurers), down to around 30 percent by 2022. The equity allocation rose from 35 percent to 45 percent, with the allocation to real estate relatively stable at 10 percent and with the final 10 percent in the 'other' category which is mainly hedge funds.

Figure 1. Finland: Insurance and Pension Asset Allocation, 2013–22



Source: FIN-FSA and IMF Staff Calculations

[3] Finance Finland 'Finnish Insurance in 2021' www.finanssiala.fi

[4] See FIN-FSA latest market update on 13 September 2022 Finnish financial sector's capital position is strong, despite the weaker operating environment - the FIN-FSA is paying particular attention to risk management - 2022 - www.finanssivalvonta.fi

A. Approach to Regulation and Supervision

12. The FIN-FSA is an integrated regulator, covering banks, insurance and pension companies, investment firms, fund management companies, and the Helsinki Stock Exchange. Supervision of insurance and pensions is combined in one division in the Insurance department. There are cross-cutting team for Investments in insurance and pensions within the Life and Nonlife division. There are departments for capital markets and banking supervision. There are cross-cutting divisions for Investments, Legal and 'Digitalization and Analysis' that service each of the sector divisions. Within the Insurance Department there is one unit for Life and Nonlife Insurance, one for Employee Pension Institutions and one for Conduct of Business.

13. The overall supervisory process has the normal features combining off-site and on-site supervision, with a quarterly risk assessment process that creates a 'heat-map' for each sector which then informs the supervisory plan. A schematic of the Supervisory Process is shown in Figure 2.

14. The quarterly heat map exercise brings together a range of quantitative and qualitative information to give an entity specific risk rating. Figure 2 shows an example from the pension sector, which in the heat map is split between the PICs and pension funds and foundations (explained in more detail in the section on pensions). The quantitative information includes solvency capital relative to the solvency limit, assets as a percentage of technical provisions, the results of stress tests and finally the figure for the solvency limit as a share of assets. More details on these elements are contained below, but the key takeaway is the use of a significant quantitative element in the heat map but alongside a 40 percent weighting for an assessment of the strength of governance, which is based on expert supervisory judgement. The quantitative and qualitative ratings are then combined to assign each entity to a risk class and an overall supervisory rating.

Figure 2. Finland: Supervisory Process and Quarterly Heat Map

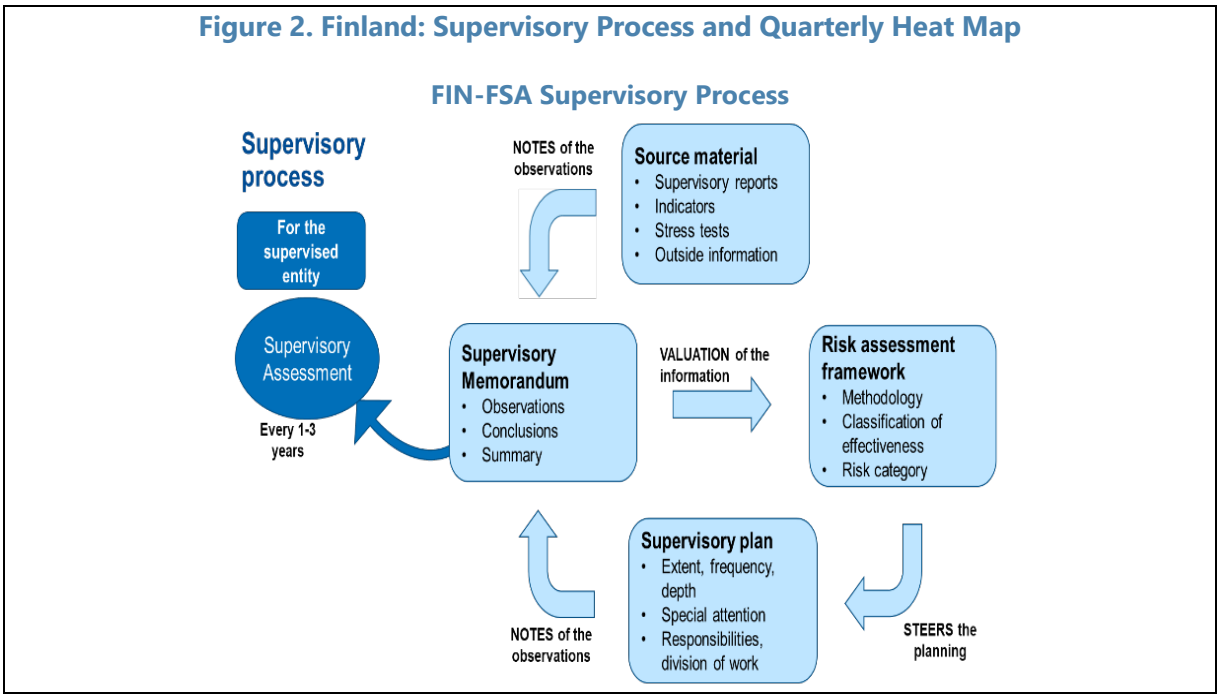
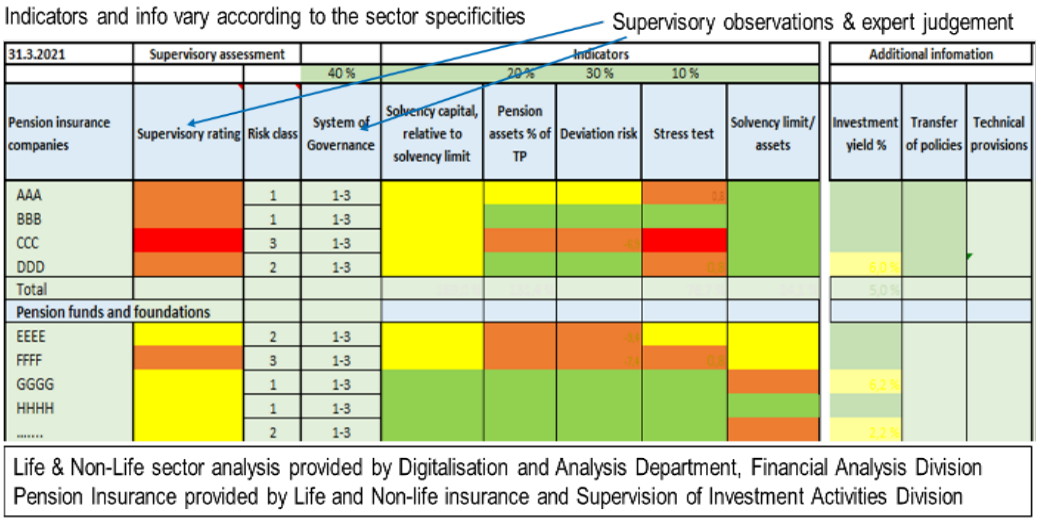


Figure 2. Finland: Supervisory Process and Quarterly Heat Map (concluded)

FIN-FSA Quarterly Heat Map Entity Risk Rating: Pensions Sector



Source: FIN-FSA

B. Regulation and Supervision of Pensions and Insurance

15. Life and nonlife companies are regulated by Insurance Company Act which unusually is under the Ministry of Social Affairs and Health rather than the Ministry of Finance. Since Solvency II is a 'maximum harmonization' directive, the Finnish Insurance Company Act is very heavily dominated by the provisions of Solvency II. This is in contrast to the relevant EU directive for Occupational Pensions known as 'IORPII' which is 'minimum harmonizing' and hence allows national jurisdictions to impose significant additional provisions.

16. One unusual feature of the nonlife sector in Finland is that it delivers elements of the Social Security system such as the mandatory Workers' Compensation scheme, as well as more typical mandatory motor insurance. In both cases, the schemes pay out in the form of annuities in cases of severe accidents, which the nonlife sector also deliver. Hence the nonlife sector delivers a significant amount of life insurance type business. Moreover, as highlighted below, the life insurance sector has effectively stopped providing guaranteed investment products in preference for unit-linked or asset related investment products.

17. The PICs then deliver another key part of the social protection framework alongside public sector providers and noncontributory pensions. Because statutory earnings-related pensions in Finland are legally part of the social security system, the EU directives for Insurance (Solvency II) and occupational pensions (IORPII) do not apply. However, the PICs are covered by some of the Solvency II-inspired Insurance Company Act, the Pension Insurance Act, and the Act on Solvency Limit and Investments. The limited number of occupational funds are a fraction of the size of the PICs, and while important to individual companies they are not covered in this Note as they do not have systemic implications.

18. Supervision of insurance and PIC sectors in Finland is undertaken by the Insurance Supervision Department in the FIN-FSA. Within the Insurance Supervision Department, life and nonlife insurers are supervised by the Life and nonlife Insurance and Supervision of Investment Activities Division and PICS are supervised by the Employee Pension Institutions Division. The preparation of laws and issuance of provisions and decisions on PICs and life and nonlife insurance rests with the Ministry of Social Affairs and Health (MoSAH).

19. Solvency is a key part of the regulatory and supervisory framework for insurers, and it has been increasing in the four years up to end 2021 for both life and nonlife insurance. Solvency ratios for life insurers were close to 200 percent and for nonlife insurers were close to 250 percent at the end of 2021. While the major challenges in financial markets seen in the first half of 2022 have put pressure on solvency ratios from one part of the solvency calculation, rising interest rates (and the impact of volatility adjustments to interest rates permitted under Solvency II) have outweighed the negative investment background and helped to keep solvency levels at historic highs.

20. This picture of stable and even rising solvency in the middle of a period of intense geopolitical uncertainty and with major economic shocks following the aftermath of the COVID pandemic is perhaps surprising. There are some concerns that the ultimate owners of insurance companies could extract significant dividends given the high solvency ratios, but then leave the companies at risk if there were a rapid reversal of the trends in interest rates. The solvency picture for the insurance and PIC sector which operates under separate solvency rules is shown in the next chart.

Solvency in Insurance and Pensions 2016–21

Source: FIN-FSA

21. Historically high solvency ratios in the nonlife sector are partly a reflection of very strong profitability in recent years as the COVID-19 pandemic systemically reduced claims on a range of insurance products. There is a broad split in the nonlife market in the level of the Combined Ratios (which show premium income relative to total costs and payouts for claims), with the mutually owned insurers having higher ratios than the privately owned companies. However, nearly all benefited strongly from the COVID-19 pandemic and indeed, the levels of profitability are such that concerns could be raised on conduct and pricing, even as they clearly serve to reduce prudential and stability risks.

22. Looking at Finland compared to other countries in Europe, analysis by the European Insurance and Occupational Pensions Authority (EIOPA) shows that solvency in Finland is in the top quartile. As well as above average solvency compared to other countries, there is a much smaller distribution of solvency ratios across the market in Finland compared to nearly all other countries.

23. One of the issues raised in the 2016 FSAP was the depth of experience on pensions in the FIN-FSA supervisory teams at that time. The current staff mix as of 2022 has senior pension expertise. This includes staff with experience in the pension insurance sector as well as in MoSAH.

C. Regulation and Supervision of Investment Funds

24. Supervision of the investment and funds sector in Finland is undertaken by the Capital Markets team in the FIN-FSA. As well as supervising fund management companies and alternative investment fund managers, they cover investment-based crowdfunding intermediaries. They also cover the Stock exchange and the Finnish Central Securities Depository over whom they have joint authority with the Ministry of Finance.

25. As with the insurance industry, but not with the pension sector, the regulation and supervision of investment funds follows the relevant EU directives very closely. This includes the Undertakings for the Collective Investment in Transferable Securities (UCITS) and Alternative Investment Fund Managers Directive (AIFMD). There are also a range of other EU regulations that are relevant for the conduct of fund management and asset management. Some companies structure themselves with a 'thin' corporate entity with the UCITS or AIFMD registration and then have asset management outsourced to portfolio managers in other parts of the group. Distribution of products often focuses on cross-sales with other parts of the group. The provisions of the EU Markets in Financial Instruments Directive (MIFID) II and the Packaged Retail Investment and Insurance Products (PRIIPS) directive will affect parts of the group for example dealing with clients, in particular in relation to disclosure in the Key Investor Information Documents. In addition, as outlined in the risks section, the new Sustainable Finance Disclosure Requirements Directive (SFDR) is having a major impact on all parts of the fund and asset management sector despite proactive FIN-FSA guidance.

26. The FIN-FSA aims to follow the EU Directives as closely as possible when creating any necessary national implementing regulations. It also mirrors detailed aspects such as 'FAQ's, taking the lead from the EU Securities Supervisor ESMA. While this is understandable, it did cause some concerns in the discussions with the industry because any delays in supporting guidance from ESMA or the FIN-FSA can leave little time for companies to develop processes and systems with full confidence they will be acceptable to the FIN-FSA. However, as with the SFDR, FIN-FSA may have little scope to influence the timing of EU directives and their implementation deadlines.

27. The Capital Markets team has a similar supervisory and risk management process as outlined for insurance and pensions but takes a strong lead from ESMA risk heat maps, which then flow into the FIN-FSA heat maps and then into the annual supervisory plan. The FIN-FSA has detailed internal supervisory plans for the year, but these are often not published in any detail. This can make it difficult for the industry to plan and respond effectively—particularly when there are multiple (EU) regulatory changes being introduced in a similar time period.

28. In terms of the market, the UCITS fund sector is dominated by a few large players, with two institutions owning 64 percent of assets under management (AUM). The dominant model for most funds is cross-selling from other parts of the group—a theme that was repeated across the NBFI sector. In the smaller, top two institutions constitute only 36 percent of total. The more limited concentration reflects the more specialized nature of the sector.

RISKS TO THE NBFI SECTOR

29. This section starts with the overall approach to macroprudential risk and the NBFIs before looking at each part of the NBFI sector and the risks that it faces. The focus on NBFI in the overall macroprudential risk framework is relatively new, whereas the consideration of risks within each part of the NBFI sector is a more established part of the supervisory model outlined above.

A. Macroprudential Policy and NBFI

30. The potential impact of the NBFI sector on financial stability was included in the updated macroprudential strategy of the Board of the FIN-FSA, which was published on June 27, 2022.[5] The strategy sets out the primary goal[6] of macroprudential policy along with four intermediate objectives, five operational policy objectives and a range of instruments —at least one per intermediate objective—by which the FIN-FSA aims to achieve the primary policy goal. The main elements that relate to the NBFI sector relate to intermediate objective three which is focused on improving risk resilience with a focus outside the 'traditional credit institutions.' This is linked to operational objective three which highlights the need (as allowed by legislation) to impose macroprudential requirements on institutions outside of the traditional credit institutions. It then identifies potential instruments which are: leverage limited for AIFMs, instruments based on Solvency II and "other instruments applicable to insurance institutions"[7] and "Exceptional measures targeted at pension providers" [8] (including regulatory measures). The discussion of potential interventions continues with: "In the absence of binding measures, the FIN-FSA issues, where appropriate, recommendations and warnings to financial market participants with respect to financial stability risks potentially emerging or building up outside the credit institutions sector." [9]

31. The potential impact of NBFI on financial stability, and any related action, has thus far had very limited public discussion, of the issues or identified actions, in the twice-yearly stability review and the related discussions on proposed measures. However, there has been significant internal analysis and discussion and, as highlighted below, supervisory thematic reviews on issues such as liquidity management in NBFI that are relevant to the broader macroprudential debate. In addition, the FIN-FSA are planning to extend and deepen the analysis for the insurance and pensions sector.

[5] Note that the full details of macroprudential policy are discussed in a separate Technical Note.

[6] The Primary Policy Goal is: "Reducing the probability and adverse effects of financial crises and other severe disruptions to the financial system on the real economy, thereby promoting long-term economic growth by i) preventing the build-up of systemic risks and vulnerabilities; and ii) supporting financial intermediation in the event of disruptions to the economy or the financial system.

[7] Macroprudential strategy of the Board of the Financial Supervisory Authority (finanssivalvonta.fi), Memorandum, June 27, 2022 (page 3).

[8] *Ibidem*.

[9] *Ibidem*.

32. Going forward, the FIN-FSA should ensure that internal analysis and evaluations are published. This approach should be tailored to the Finnish context but could usefully build on the quarterly ECB Financial Stability Review, in which Section 4 is always on the NBFI sector. As part of the process to use macroprudential instruments, the FIN-FSA has to seek the comments of the MoSAH (as well as that of the Bank of Finland and the Ministry of Finance). This is useful, in particular for the PICs, given that they are part of the broader pension system as it would allow the MoSAH to provide specialist pension-related input. In addition, the June 2022 macroprudential policy strategy memorandum notes that "Macroprudential stability assessments should also take into account new types of global risks, such as cyber and climate risks."[10] These are both clearly relevant to the NBFI sector, with the issues of climate change particularly pertinent for very long horizon investors such as the PICs and insurance companies—in addition to the direct claims-related risks for insurance companies.

B. Regulation and Supervision

Liquidity

33. The biggest issue for the fund and asset management sector in Finland during the recent COVID-19 pandemic and since the start of the war in Ukraine was liquidity. While issues were not severe or badly managed, there were issues at times with liquidity. Practices in fund companies differed in relation to continuing to price daily-priced investment funds and keep them open. Some providers managed to weather the crisis without any fund suspensions, even for a short time. Others decided to suspend funds. This is permitted in the regulations for a 'temporary period' which has been interpreted in Finland to mean up to 14 days. However, for funds with exposures to Russia, these were not temporary suspensions.

34. After the 9/11 attacks and during the Global Financial crisis, the FIN-FSA had to take the lead in decisions on fund suspensions, while in the most recent crises, the funds can take the lead, while informing the FIN-FSA. This helps to speed up response times and puts the initial responsibility with funds closer to the developing picture in the market. All funds that were interviewed implemented crisis management measures. They all expressed appreciation for the FIN-FSA's rapid adoption of a similar stance. There was a universal belief that the system had performed much more effectively than in the 2007–08 market crisis.

35. Funds did differ in their final decision as to whether to suspend trading. Some took the view that they could not reliably trade during the worst part of the market disruptions—during the so-called 'dash for cash.[11] This was influenced by market data (such as trading volumes and bid-ask spreads), as well as more subjective considerations in relation to the gravity of the emerging crisis and whether trading could be orderly in that environment. Regular contact with the FIN-FSA also helped some take a decision to temporarily suspend a fund with the

[10] *Idem* (page 2).

[11] See for example Bank of England Financial Stability Paper No 47 for a detailed examination of the daily dynamics of the dash for cash episode and the role of NBFI The role of non-bank financial intermediaries in the 'dash for cash' in sterling markets | Bank of England. The ECB covers this and other issues in its half yearly Financial Stability Review. Stability and Liquidity issues in the NBFI sector are also addressed quarterly by the European Systemic Risk Board (ESRB) EU Non-bank Financial Intermediation Risk Monitor 2022 (europa.eu)

knowledge that the supervisor acknowledged this to be an appropriate course of action. In the event, there were temporary suspensions in 37 funds registered in Finland with a total AUM of EUR 3.5 billion or 2 percent of the industry AUM. The suspensions varied between one to eight days.

36. The FIN-FSA participated in two Common Supervisory Actions instigated by ESMA and ESRB in relation to liquidity management in the UCITS and non-UCITS fund sector. The FIN-FSA published the results in April 2021. The review covered all Finnish management companies but had a particular focus on high-yield (investment grade) corporate bond funds. For the ERSB review, the FIN-FSA carried out stress tests on a subset of funds. In tests with corporate bond funds, all passed the redemption coverage ratio test based on the proportion of liquid assets in the portfolio. In a second test of a simulated redemption shock, two of the eight funds would not have been able to make redemptions immediately, but all would have been able to do so within a month. All the real estate funds were able to meet the stress tests in the sample.

37. In its conclusions to the two Actions, the FIN-FSA highlighted a range of areas for improvement, in particular in terms of documentation and testing. However, it noted that actual experiences of liquidity issues during the severe shock from the pandemic were limited and temporary. The review concluded in addition that:

- The FIN-FSA finds that management companies should ascertain that the rules of funds under their management allow adequate use of liquidity management tools provided by fund regulation, as regards funds where the use of liquidity management tools is appropriate. Before resorting to liquidity management tools, management companies must also ensure the quality and adequacy of their processes, systems, the competence of the personnel and resources. In addition, management companies should pay special attention to internal flow of information and clear reporting relationships in order for portfolio management to be able to anticipate incoming cash flows as well as possible.[12]

Leverage

38. The 2016 FSAP noted relatively low leverage levels in larger investment funds, which remains true in 2022. There are limits within the UCITS directive on the amount of leverage that can be taken, which can only be up to 10 percent of the NAV of the fund. It can only be temporary and cannot be used for investment purposes. While the AIFM directive does not limit the use of leverage, the FIN-FSA can do so on a case-by-case basis. There are also national legislative limits on the use of leverage in open-ended real estate funds (under the Real Estate Act). FIN-FSA report that at end-2021 there were only 5 funds using leverage on a very significant level—over 300 percent of assets. These were predominantly hedge funds and had an average size of EUR 17 million. In addition, there were 25 alternative investment funds with assets over EUR 300 million with gross leverage of 127 percent (where 100 percent is no-leverage).

[12] See FIN-FSA Supervisory Letter 1(23) 6 April 2021at supervisory-letter-liquidity-risk-management-by-ucits-and-non-ucits-of-significant-size.pdf (finanssivalvonta.fi)

Solvency

39. The significant recent increases in interest rates which are likely to continue in the face of continued inflationary pressure have important implications for liability and assets. Thus far, looking at the quarterly changes in the Solvency Ratios for Life and nonlife Insurance companies, the interest rate impact on liabilities is dominating any effect of rising interest rates leading to falling valuations of bond investments. This is the case up to 2022Q2, and the FIN-FSA is closely monitoring—and publicly commenting on developments in a helpful way.

40. The FIN-FSA expect less severe risks to solvency for the Life insurance sector due to the continuation of the shift from guaranteed interest rate products to unit-linked products. Guaranteed rate products are clearly more challenging to deliver in a prolonged low-interest rate environment. Previous expectations for a cautious rate of interest to guarantee in EU countries were overturned by the impact of the exceptional macroeconomic policy measures that followed the global financial crisis. On the other hand, unit-linked products simply pay the returns on the underlying assets and consequently have much lower solvency requirements. Such products have challenges—not least how to deliver positive real returns after costs[13] —but these are of a different nature. The move from guarantees to unit-linked products has seen a shift from 64 percent of insurance company technical provisions in 2016 to 77 percent in 2021, as shown in Table 4. Total premiums for unit-linked products in 2021 were higher, at 89 percent.

Table 4. Finland: Unit Linked Business 2016–2021 As Percent of Total Solvency II Technical Provisions
(In percent)

2016	2017	2018	2019	2020	2021
64	68	69	71	72	77

Source: FIN-FSA

41. For the nonlife insurance sector, the current very high levels of profitability mean that solvency risks are not high. The FIN-FSA's latest report on the 2022 Q2 results for the Nonlife Sector confirmed solvency at record levels. The nonlife sector continues to operate with its somewhat unusual structure of delivering a significant amount of annuity business linked to statutory schemes such as workers compensation. While these do not provide the majority of premiums, for some providers they do account for a significant majority of the required regulatory capital. There is no evidence that this is an issue given that it is a long-standing feature of the Finnish insurance system, but it may help explain why few non-Finnish companies seek to enter the nonlife insurance market as it is partly a life insurance market.

42. Given strong solvency, despite challenging market conditions, the FIN-FSA risk focus should shift to conduct of business or value for money issues. This is not really a stability issue—since higher profitability helps to boost solvency and resilience in general. But given the increasing attention of both EIOPA and ESMA to cost and value issues it is something on which the FIN-FSA should place greater attention in the coming years.

[13] See for example the annual EIOPA survey of costs and returns in the Insurance and Pensions sector which highlights very low and even negative real returns for many providers of unit-linked insurance.

C. Other Risks and Vulnerabilities

Russia

43. The impact of the Russian invasion of Ukraine has been very significant for Finland in geopolitical terms but has not led to major impacts on the insurance sector to date. The first-round effects of the crisis and the resulting sanctions was initially relatively small because most of the insurance companies had largely domestic operations. The second-round effects have been larger given the impact on financial markets globally, and on the economy through rising inflation and interest rates. This is clearly potentially impacting solvency ratios for insurers—but given the relatively high levels that they had going into the crisis, the impact is so far seen to be manageable, and offset by rising interest rates. A key area for risk assessment now would be the potentially escalating impact from restrictions on energy supply from Russia to Europe in general. This is an area on which the Finnish government is clearly concerned, given the recently announced special measures to support the energy sector.

44. For limited funds with direct exposure to Russia, the experience was not one of temporary liquidity issues, but rather rapid suspension followed by closure. The suspension of some Russia-specific funds also temporarily affected some fund-of-funds in which they were components. But given the swift implementation of sanctions and the severity of the crisis, fund managers moved rapidly to close funds and effectively write-down the assets. This was clearly unfortunate for the investors, but the process was orderly.

Cyber Risk

45. Cyber risk has become more important as a risk over the years, but with a particular increase following the start of the war in Ukraine and the move by Finland to join NATO. It raises the prospect that threats from criminal activity to exploit companies and individuals will be augmented by threats from state actors. The potential impact of both types of threats should not be underestimated. Concerted action by the regulatory authorities and the insurance sector is required. As highlighted elsewhere, concerns over the level of resources in the FIN-FSA to address supervisory risks are particularly acute in the cyber area where new and highly technical resources may be needed in additional to communications and outreach. Moreover, it may also be state institutions that are the potential targets. All organizations interviewed said that they had increased cyber preparedness—often in the context of major long-term IT upgrades that many were adopting to embed digital approaches into their businesses. However, so far, the threats have not materialized—though clearly there are limits to how far this can be tested independently.

Climate Change

46. Perhaps the biggest and most long-term risk is in relation to climate change and more broadly the challenge of sustainable development. It is important for investors in companies, countries and sectors that could be negatively affected by climate change. Significant and increasing activity has been seen at the global level through the United Nations

(increasingly in the context of the Sustainable Development Goals),[14] as well as at the regional and national level. EIOPA has recently consulted on guidance for how to include the impact of climate change in the Own Risk Solvency Assessment (ORSA) for life and nonlife insurers.[15] ESMA has set out priority actions to tackle 'greenwashing and promote transparency, building the capacities of ESMA and national competent authorities and monitoring, assessing, and analyzing ESG and markets risk.[16]

47. Tackling climate change is a national government priority in Finland.[17] It was flagged as an emerging risk by FIN-FSA on which it is focusing an increasing amount of attention.[18] ESG issues have rightly also received attention at an industry level in Finland as well as from the individual companies.[19,20] FIN-FSA conducted a thematic review on the quality of ORSAs and investment related risk in the first half of 2022—which will provide a first opportunity to see how far climate (and other risks) are tackled in the ORSA.

48. The most pressing issue raised by entities in the NBFI sector were the requirements of the EU Sustainable Finance Disclosures Regulation (SFDR). This amends the relevant EU directives (UCITS, AIFMD, Solvency II, IDD and MIFID II) with common additional requirements. A detailed technical standard on required disclosures was developed by the EU market regulators and comes into force in January 2023.[21] While a high degree of commitment was expressed across the NBFI sector to ensure that Finland continues its leading role in sustainable investment, there was a common concern that the SFDR imposed significant costs and required rapid decisions in areas where data were often not as robust as needed. FIN-FSA has already released a great deal of guidance on this and other sustainability issues but faces constraints from a timetable set at EU level that it does not control. Market participants claimed that the SFDR has created a significant burden at the same time as multiple other regulatory requirements, in addition to the impact of COVID and the war in Ukraine. In terms of overall risks as seen from the PICs, Box 1 sets out the views in their Annual Reports. Sections 4 and 5 below investigate the risks in relation to solvency in particular in more detail.

[14] See for example: OECD and UNDP launch a plan to align global finance with sustainable development | United Nations Development Programme

[15] Application guidance on climate change materiality assessments and climate change scenarios in ORSA | Eiopa (europa.eu)

[16] esma30-379-1051_sustainable_finance_roadmap.pdf (europa.eu)

[17] https://unfccc.int/sites/default/files/resource/LTS_Finland_Oct2020.pdf

[18] Sustainable finance - www.finanssivalvonta.fi

[19] See for example Finance Finland's recent report on climate change and the nonlife insurance sector Report abstract: Nonlife insurance and climate change - Finanssiala

[20] In the PIC sector for example, a major PIC has committed to have net-zero greenhouse emissions by 2035 as has another PIC who are also focusing on the impact of its portfolio on biodiversity.

[21] Sustainability-related disclosure in the financial services sector (europa.eu)

Box 1. Finland: Risks in the Pension Sector—the Views of the Pension Insurance Companies

Pension insurance companies identify various key risks to their sector in their Annual Reports and other material. These risks span the areas of financial sustainability, long term investment strategy, solvency, economic outlook, and the war in Ukraine. In general, their views are very similar to those set out for the life and funds sector, but with some PIC-specific issues.

Financial sustainability. The key developing problem among major PICs relates to the long-term financial viability of current Finnish pension arrangements. Various reports show that the built-in (indexation and longevity) adjustment mechanisms are not able to ensure that pension contributions could cover the expenditures in the long run. The PICs see a solution in raising pension contributions as well as strengthening the adjustment mechanisms. The adjustment mechanism could incorporate automatic features that further tie the contribution levels to indicators that affect the system's financial balance. The downside of these mechanisms, however, is that they may transfer risks from the PICs to the individual pensioners. Policy makers and social partners should explore the tradeoffs and choose measures that improve the financial sustainability of the system while minimizing the political frictions and pressures on individual finances. Publication of new Finnish Centre for Pension's (ETK) long-run projection in October 2022 is therefore timely.

Long term investment strategy. The volatility in the equity markets has taught investors to think long term. the solvency regulations lead to procyclical investment behaviors. For instance, on account of the solvency limits, companies might be forced to invest too pro-cyclically and forced to sell when equity prices fall. This led to calls for reform in investment operations and solvency regulations despite recent changes in solvency regulations that have mitigated procyclical impacts.

Economic outlook and the impact of war. Although direct exposure of PIC investment portfolios to Russia is limited, the war in Ukraine has substantially increased risks to the economic outlook and solvency under stress scenarios. They contribute to increasing uncertainties in returns to investment and whether investment targets would be achieved. Moreover, tightening financial conditions and fiscal policy are crucial to PICs as they need to adjust to higher interest rates and lower liquidity.

Risks to solvency. Solvency of PICs are affected by investment activities, insurance business surplus and expense loading. Among these, investment operations pose PICs with highest risk in the current situation. PICs accept a certain level of market risk, weighing the benefits of higher returns when markets boom against risks to capital strength and solvency when returns are lower. Given that PICs have recently increased the share of riskier investment, such as those in real estate and hedge funds, the balance has tilted towards riskier investment in the past decade. Moreover, major PICs have limited their exposure to government bonds to the extent required for liquidity reasons and have increased their share of equity investment which is deemed riskier.

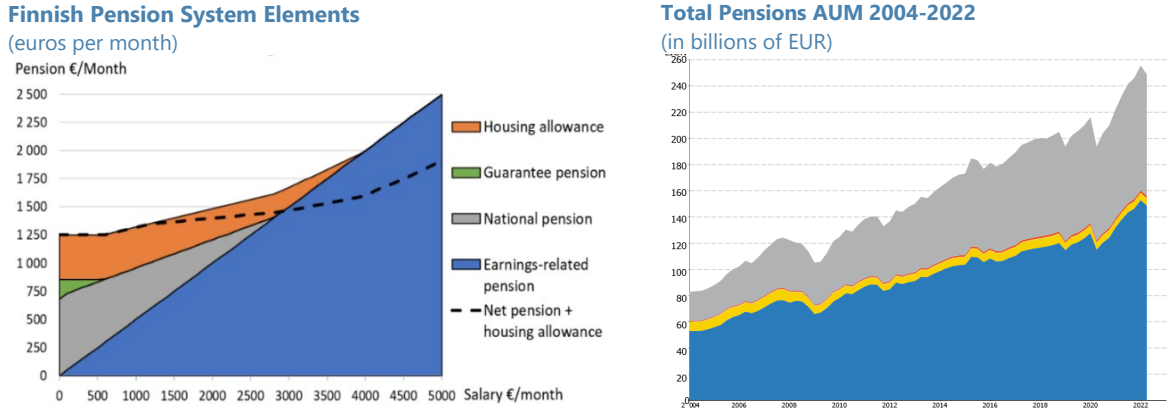
Other strategic risks. The Finnish pension system is earnings-based, dependent on economic growth and a robust employment rate as well as favorable population demographics. However, there are often mismatches between labor supply and demand. Economic growth was robust in the aftermath of the pandemic but not sufficient to bridge the sustainability gap. Therefore, household indebtedness and population aging will exert pressures on public finances.

THE PENSION INSURANCE COMPANIES

A. The Role of the PICs in the Finnish Pension System

49. Finland has a multi-pillar pension system. It has a residency-based national pension,[22] a guaranteed pension for people with no other pension income, a large housing allowance and the earnings-related 'statutory' pensions. The earnings-related pensions form an increasingly important role as income rises and the other forms of pensions are withdrawn. The way in which the different parts of the system interact is shown in Figure 3 (left). There are active and important debates on the overall balance of the Finnish pension system and its long-term sustainability. There are a range of very useful sources for those interested in these aspects—from material published by ETK with significant new projections released in October 2022, to that produced by government ministries and also from periodic external reviews by international experts—with the most recent in 2019.[23]

Figure 3. Finland: The Finnish Pension System



Source: Finnish Centre for Pensions (Pension Income Level—Finnish Centre for Pensions (etk.fi)).
Note: Grey, orange, yellow, and blue denote public sector pension institutions, MEK and MELA, company funds and industry-wide funds, and PICs, respectively.

50. Contributions in the private sector are 24.4 percent of salary, split two-thirds for employers and one-third for employees; the system is mandatory and has near universal coverage given the very high degree of labor market coverage in Finland. For local government workers, total contributions are higher at 28.4 percent. The employers and unions negotiate each year on contributions—whose level depends on the performance of the PICs. The better the investment performance the lower the pressure to raise contributions in the face of familiar demographic challenges from rising life expectancy and low birth rates. Workers accrue pensions at 1.5 percent a year—meaning that a 40-year career would give 60 percent of salary—but with the final pension value subject to change in relation to changes in future life expectancy. As a Defined Benefit (DB) pension, the relevant factor is years of service and wages. Past wage levels are increased by an index of 80 percent of wages and 20 percent of prices to

[22] The National and Guarantee Pensions are funded from government revenues and administered by KELA, which also administers a range of other government programs. www.kela.fi/web/en

[23] *'Pension adequacy and sustainability: An evaluation of the Finnish pension system'*, Andersen, Torben M. (2021) https://www.julkari.fi/handle/10024/143091

calculate the final pension. Once the pension is paid, it increases each year by an index that is 20 percent wages and 80 percent prices. So, pensioners share partially in wage growth over time and the real value of pensions is protected.

51. The PICs contain most of the asset in the private sector earnings related pension system, with the local government fund and the central government buffer fund dominating the rest of the picture. Figure 3 (right) shows how the PICs (in blue) and public pension funds (in grey) account for the majority of assets. There are other plans—including the Pension Funds and Foundations that are supervised by the FIN-FSA like the PICs. But given their small size they are in general not discussed in this note.

52. Crucially for PIC investment strategies is that the system is 'open'—meaning that contributors are continually joining—rather than closed to new members. The duration of the liabilities is very long—and there is no reduction over time in the investment or liability length as is seen in the many closed DB occupational scheme in countries like the United Kingdom (UK) and United States (U.S.). A very long-term horizon is natural for a Social Security pension pillar as long as the assets and contributions are sufficient to meet payments. Once pension payments exceed contributions plus investment income on the assets—and the stock of assets begin to be used to pay pensions – the time horizon for a partly funded pension system starts to shorten dramatically. In this case it would then be more appropriate to think of the PICs like an insurance company annuity portfolio or a closed DB occupational pension plan, but this is not the case now. The three-yearly projections from ETK and the related debate between social partners and the government about the balance between benefits, contributions, and the role of the PICs (and public pension funds) is hence extremely important. New projections in October 2022 were therefore timely.

53. There is little connection between the short-term solvency regulations, including the detailed rate of return calculation that increases liabilities for PICs each year, and the long-term projections on the costs of financing Finnish pensions. The long-term projections are driven by the investment returns of the PICs as well as traditional actuarial factors such as mortality, dependency ratios, employment rates, effective retirement ages and growth in salaries and inflation among other issues. This disconnect is unfortunate, and the Finnish pension system would be strengthened if the long-run funding framework helped to drive the short-run supervisory actions for the FIN-FSA.

54. The PICs face very low liquidity risks—with two difficult-to-model exceptions—which puts them in a different position to insurance and fund management companies in Finland and pension funds in many other countries. As part of Social Security, no one can transfer assets out of the system—in the way in which members can transfer assets out of their occupational pension plan in the U.S. on changing employers for example. Moreover, workers or members do not play any role in choice of provider. The employer chooses a provider. If the employer moves provider this only affects the new flow of contributions. There is no movement of assets from the existing provider to the new one, except in cases where pensions are transferred from the earnings-related pension company to an industry-wide pension fund or company pension fund, or vice versa. There are high cash inflows given the scheme is mandatory.

55. One exception to the generally very low relative liquidity risks is that employers are able to borrow from the PICs based on the value of their past contributions. This right was used extensively during the global financial crisis, with billions of euros in assets borrowed by employers. However, it was not used during the recent crises due to COVID and the Russian invasion of Ukraine. A PIC does have the right to restrict borrowing—to 10 percent of the employer's funds in the relevant PIC in a 12-month period or for liquidity reasons. However, given that many companies stay with their PIC for decades, this could still be a very significant amount of money. A PIC may also have concerns that they will lose customers if they do not offer the liquidity and their competitors do. Given there is no real way to predict whether it will be used in the future, and the greater access to finance from the banking system than in the past, the right should be removed or more significantly constrained.

56. The second way in which liquidity can be affected is from temporary government reductions in contributions to employers during periods of economic stress. During the COVID-19 pandemic, the Government temporarily reduced employer contributions by 2.6 percentage points (see Annex A for a list of COVID related measures for Finland with a market impact identified by the European Systemic Risk Board (ESRB)). This clearly has an impact on liquidity as it reduces inflows, while outflows to pension payments were unchanged. Legally, these temporary reductions must be made up, and there will be a small increase in contributions for the next 4-5 years to make up the difference. This symmetric approach means that reducing contributions during economic stress can actually be a very effective macroeconomic tool to protect employers and employment. But close dialogue is needed with the pension providers to ensure that the reduced inflows do not create liquidity issues. Taken overall, however, the PICs in Finland are in a very strong position relative to many pension funds globally to take a long-term view and invest in investments from which they can harvest an illiquidity premium.

57. An important feature of the PIC regulatory regime is that the providers are jointly liable to pay pensions promised under the Employees' Pension Act. This means that if a PIC ceases to operate for any reason, its share of the pension liabilities would transfer to the other providers—along with its assets. This is an unusual feature, and partly helps to explain how the solvency rules have developed to try and get PICs to reflect in their own liabilities the developing value of liabilities in the other PICs. As noted below, there have been recent examples of smaller PICs being taken over by larger ones. These are sometimes due to a smaller PIC having issues with solvency and sometimes due to strategy changes in a wider group of companies. The process is simpler where solvency is stronger—but even where there have been temporary issues with solvency that have driven consolidation these have not been of a crisis nature as seen for example with a failing insurance company that is struggling to meet payments. The process and arrangements for the failure of a major PIC are however, not that clear. This is discussed later as one of the areas that should be investigated as part of a crisis simulation because there could be material issues that make the current successful experience with mergers and takeovers a less clear guide for the future.

B. The Pension Insurance Company Market

58. There are now only four PICs, with the number of PICs consolidating over the years. The four current provides are Elo, Ilmarinen, Varma, and Veritas. Their assets under

management are set out in Table 5 (in no particular order), alongside the local government and central government funds. The table also shows that a number of the funds are among the top 25 by size of European pension funds. Hence, they are substantial investors in their own right—and well above the level of USD 20 billion which is often used as a rule of thumb for the scale at which a pension fund can fully exploit the pervasive economies of scale in investment management and administration—and support a large in-house as well as sophisticated external asset management program.

Table 5. Finland: Assets Under Management and Relative Size of PICs and Public Pension Funds

Name	AUM (end-2021)	Rank in European Pensions (end-2020)
Local Government Fund	66.8	21
PIC 1	60.8	23
PIC 2	59.0	25
PIC 3	29.4	61
Central Government Fund	23.6	82
PIC 4	4.4	392
Total (incl. related smaller funds)	254.9 o/w PICs, and public pension funds 96 percent of total	

Source: Pension Fund Annual Reports; Insurance and Pensions Europe (IPE).

Note: Total assets include non-PIC pension funds operating in the private sector and some specialized pension funds for the Church, Seafarers and Farmers which in total cover only around 5 percent of total earnings-related pension assets. The four PICs, and public pension funds account for 96 percent of the total assets.

59. The three largest PICs are mutuals, with the smallest, a limited company, meaning that with the public sector funds nearly all of Finland's EUR 250 bn pension industry being controlled by not-for-profit entities. This critical role for mutuals in the PIC market mirrors that seen in the life insurance market as noted earlier. Regardless of the ownership structure, PICs are only allowed to carry out PIC business and cannot offer other products such as general insurance or asset management. The significant role for mutual or not-for-profit pension funds is also seen in many other countries given the model of employer-sponsored pension trusts and entities such as Norway's Pension Fund Global, Japan's Government Pension Investment Fund or the Canada Pension Plan Investment Board.

60. The Finnish PIC market has consolidated over time. In 2019, Alandia (a very small PIC) merged into Veritas. ELO was formed from the merger of two PICs run by groups that are still active in the insurance market (Fennia and Local Tapiola). Etera also merged into Ilmarinen. Alandia's move was driven mainly for reasons of business strategy, whereas Etera's move was driven by problems in relation to solvency when they took a different view to the other main PICs on likely changes in equity markets. This provides a real example of the issues discussed below on how the solvency rules can have strong impacts on PIC behavior and even survival as independent entities.

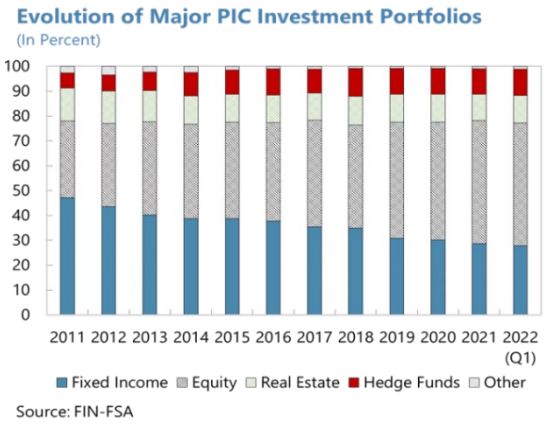
61. The PICs compete with each other for employers to choose them as their provider on behalf of their workers. The PICs attract employers in a number of ways. One is the ability to reduce the costs of the system to the employer because the PIC can return up to 1 percent of their solvency capital to their customers. PICs can also compete on lower costs. Until 2022,

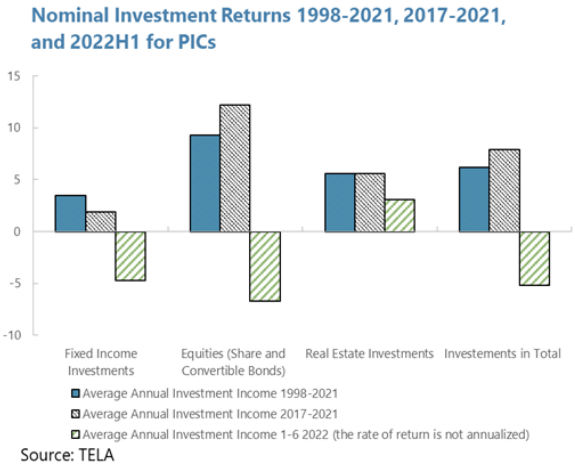
0.6 percent of contributions were allocated to the PICs for their operating costs (investment management costs are deducted from fund assets). So, if a provider spends less than 0.6 percent of contributions on their own costs, they can offer a (small) rebate to the customer. From 2023, PICs will just be paid the direct costs, but the principle of competition on costs is the same. One part of competition will be general reputation and perceived competence. The final market dynamic is that each of the PICs have an agreement with other financial sector providers. PICs cannot sell products from other groups, but some have association with other financial groups and providers, can refer customers to each other. In theory the PIC market is open to foreign competition but its unique requirements, including joint liability, mean that there are no foreign providers, and no one expected any to enter.

62. The asset allocations of the PICs have developed over time, increasing allocations to equity, particularly to private equity as well as significant allocations to real estate and hedge funds. Figure 4 (left) shows how the allocations for the four current PICs has changed, with the fall in fixed income resulting from the shifts outlined above clearly visible. The period shown, 2016 to Q1 2022, includes significant changes in the regulatory environment outlined in more detail below. This loosened previous restrictions on the percentage of assets that could be invested in equity and significantly reduced the solvency capital required to back investments in private equity as well as since 2017 mitigating the procyclical impacts of the solvency regulations.

63. The changes in asset allocation have helped overall PIC returns, given the higher average yields on listed and private equity and real estate compared to fixed income (Figure 4). With the higher returns from equities comes higher volatility, however the volatility has been dampened by the increasing use of private equity and other illiquid investments that have only quarterly pricing. Moreover, the key issue for a PIC should not be not short-term volatility but long-run performance, unless the short-run volatility has an impact on long-run performance.

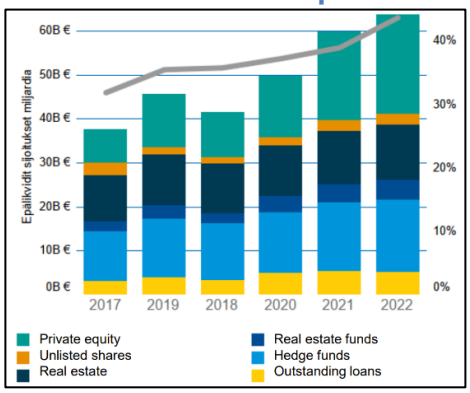
Figure 4. Finland: PIC Asset Allocation and Asset Returns





64. Changes in the solvency regulations over time have permitted greater allocation to private equity, alongside significant allocations to real estate for a number of years. In total, the allocation to illiquid investments has grown substantially (text chart). While there are some criticisms of the current solvency approach for PICs and suggestions for changes, it is important to note that the PICs have been able to increase their allocation to illiquid assets over time. This has supported returns, but it is an important area to monitor, as the FIN-FSA does. As highlighted above, the PICs have very low liquidity needs compared with many pension funds given that they do not have customer transfers. However, the experience of the Harvard endowment during the GFC is always instructive—where successful returns from long-term illiquid investments was followed by a need to rapidly exit some investments as demands for liquidity rose. This is why matching the solvency and liquidity regulations to the central purpose and nature of the fund is so critical.

PIC Allocation to Illiquid Assets



Source: FIN-FSA

C. Legislation, Regulation, and the Impact of Solvency Rules

65. The operation of the PICs in practice is governed by specific acts from the MoSAH (Act on Earnings-Related Pensions Insurance Companies and the relevant provisions of the Insurance Act and the Act on Solvency Limits and Investment Diversification). There are then regulations and guidelines issued by FIN-FSA.[24] In addition to the PICs, pensions can be provided in the private sector by Pension Foundations and Pension Funds—either as part of the statutory system or as voluntary additional contributions. They are effectively akin to employer sponsored or industry pension plans found in other EU countries and elsewhere and have their own specific Acts as well as having common treatment with the PICs. Whereas such funds can be very significant in other countries (e.g., the industry funds in the Netherlands or employer sponsored pension plans in the UK), they play a small part in the Finnish pension system relative to the PICs. PICs are not covered under EU Insurance or Pension directives but with a quid pro quo that they can only provide earnings related pensions as part of the mandatory Social Security system.

66. Perhaps the most important part of the legislative and regulatory framework is the solvency rules—both from a stability and risk perspective as well as for the long-term. There are detailed provisions on governance and operations, as well as reviews of key risks such as on IT, but the discussion about the impact of the Solvency rules was the dominant theme of the review in terms of regulatory impact.

[24] The most important Acts for private sector workers in terms of rules and benefits for workers—and the pensions which are relevant for the PICs—regarding the Employees Pension Act (known as TyEL) and the Self-Employed Pension Act (YEL). For workers in the public sector, the most important act since 2017 is the Public Sector Pensions Act (JuEL).

67. The solvency rules are complex and have a number of parts, that at first sight borrow from an insurance solvency framework, but in reality, have some important differences.[25] The PICs have to meet two on-going solvency tests. The first is the solvency ratio. This is total pension assets divided by their technical Provisions. Formally this must be above 100 percent. In practice it needs to be much higher than this for normal operations—and the current average is around 130 percent. The second regulatory calculation is the solvency position—the ratio of solvency capital to risk-weighted required capital.[26] This figure is around 1.5 to 2 in normal times. If a PICs falls below 1 then they must inform the FIN-FSA of their plan to restore the ratio above 1, typically within a year. Formally, the minimum solvency position is 0.3 at which point there must be an urgent plan for restoration within 3 months, but in practice this limit does not play a key role since the solvency position of 1 is seen as a binding (and potentially) terminal feature by the market.

68. The approach in the solvency regulations to valuing liabilities for the PICs is very different to that for insurers under Solvency II and does not have any real link with the approach used in the long-run actuarial modelling of the health of the Finnish pension system. In order to calculate the key regulatory ratios, it is necessary to calculate Technical Provision and Risk Weighted Capital Requirements. The figures behind the calculations are shown in Table 6, for the PIC sector as a whole and then for each individual company at end 2021.

69. This disconnect between the short-term and long-term helps to build the case for a new methodology that is more in tune with the exact nature, purpose and risks of the PICs in the Finnish pension system. Despite PIC technical provisions nominally being liabilities for a DB pension system, factors such as wage increases, or inflation do not directly enter the calculation of the liabilities as part of the solvency regulations. Instead, the technical provisions grow each year by the required rate of return. Looking at the actual figures used by the FIN-FSA and the PICs to understand the solvency position helps to show how the required rate of return calculation can lead to a rapid change in solvency capital and hence in the solvency ratio but particularly the solvency position. However, a rapid change in this ratio has little or nothing to do with the ability of the PIC to take investment risk, to benefit from a recovery in equity markets, or indeed to the actual changes in the costs of the DB Pension system. Changes in long-run costs of DB pensions are driven by mortality, salary changes and inflation, the benefit formulas in the pension acts and the wider demographic changes in relation to employment rates, effective retirement ages and dependency ratios. Given that the formula to update technical provisions each year in the current solvency regulations does not factor in many of these elements, there is

[25] See 2018 Euro Area Technical Note on Insurance, Investment Firm and Macroprudential Oversight

[26] The solvency capital that each PIC has depends on its total assets minus the technical provisions. For a life and nonlife insurance company under Solvency II, the Technical Provisions are calculated in relation to the risks of the different types of life and nonlife insurance business, including, for example the biometric or mortality risk where longer life expectancy would mean an annuity for example would have higher costs. The technical provisions are then calculated using a market consistent (and hence regularly changing) discount rate provided by EIOPA, which can be adjusted by a volatility adjustment to pick up the impact of periods when bond spreads are rising. See https://www.eiopa.europa.eu/tools-and-data/risk-free-interest-rate-term-structures_en for the country and currency specific risk free and other rates provided by EIOPA, including adjustments made in the early days of COVID.

no reason why the short-term solvency regime will help link to the long-term funding pressures and help align assets with real liabilities.

Table 6. Finland: Solvency Data on the Pension Insurance Companies, 2021					
	Total	**PIC 1**	**PIC 2**	**PIC 3**	**PIC 4**
Category	In Billions of EUR				
1. PIC Solvency capital	41.1	16.5	16.9	6.6	1.1
2. Required Solvency Capital	22. 0	8.7	8.5	4.2	0.6
3. Minimum capital requirement (0.33 of Required Solvency Capital)	7.3	2.9	2.8	1.4	0.2
4. Technical provisions (increased annually by required rate of return)	114.8	45,1	42.9	23.4	3.4
5. Risk-based solvency position or Solvency Limit (1/2)	1.9	1.9	2.0	1.6	1.8
	In Percent				
6. Solvency ratio PIC assets/Technical Provisions (in percent)	136	137	139	128	132
Source: FIN-FSA					

70. The Required Rate of Return formula that determines the annual change in Technical Provisions (TPs) is set out below. It is not a discount rate by which TPs are expressed as a Net Present Value, but a formula to determine how much TPs rise each year:

Required Rate of Return = 3 percent + f(Average PIC Solvency) + f(percent average Equity Return).

71. The base rate of return 3 percent has been in existence for many years. It does not change with market interest rates and has nothing to do with market consistent discount rates. It is also unrelated to the assumptions for PIC investment returns used by ETK in its projections for the long-term stability of the Finnish pension system. The second term on average solvency is designed to link the solvency of each PIC with the changes in the solvency of PICs on average, given that each has joint liability with the others. Given that all the real underlying liabilities are growing by the same amount because they are based on a formula for pension in the law, and unrelated to PIC performance, it is not clear that this joint liability formula achieves its central purpose. Until 2022 the figure had a lower bound of 0 percent. Since 2022, if the average solvency of the PICs falls below 120 percent, then this term can help to reduce the required rate of return and hence increase in technical provisions in a given year, as it will pick up general solvency issues. However, up until this recent change, the term has increased the required rate of return for PICs and helps to explain the herding behavior of the PICs because they need to have relatively similar results in order to be hedged against an increase in technical provisions from the results of their rivals.

72. The final term links changes in the equity market to the required rate of return. This has changed over time, initially only including 10 percent of market changes, and now including 20 percent. It is designed to act as a buffer against fluctuations in equity returns. It may be either positive or negative. It has an upper limit of 1 percentage point and a lower limit of 20 percent of the technical provisions. These recent changes help to reduce the short-run

annual pressure to react to changing market circumstances by increasing or decreasing the required rate of increase in technical provisions, which in turn will impact solvency calculations. However, it does not make the current approach worth continuing because the system does not link short-term supervision to the long-term purpose and risks of the PICs – and the evolution of the underlying pension liabilities in Finland's DB funding system.

73. The formula to calculate risk weighted capital is substantially more complex than that for the required rate of return which itself is not simple. This increases the complexity of the system, but also ensures that variations of the Solvency Limit and Solvency Position may have little link to the needs of the pension systems or the real risks of the PICs. There are 18 risk categories included in the risk weighted capital calculation. They include the main asset classes. For each there is a required rate of return and a risk weighting formula. There is then a correlation matrix for each of the assets that can be used to calculate a diversification benefit. In principle this approach has similarities with other risk weighted solvency approaches. However, the assumed rates of return and risk weights and the correlation matrix are all set out in a Government Decree accompanying the legislation on Solvency Calculations. They do not adjust over time—and have been unchanged for the past 5 years. Hence the link between the numbers and current underlying market behavior is not clear. This means that the exercise may or may not be highlighting real short-term risk and risk mitigation through diversification. Even if all of these relations remained static, including during crisis periods (which they do not) it still does not have a direct impact on the ability of a PIC to generate long-term returns. The correlation matrix is set out at Figure 5 as an example of the complex underpinnings of the risk weighted capital calculation.

Figure 5. Finland: Correlation Matrix for Risk-Based Capital

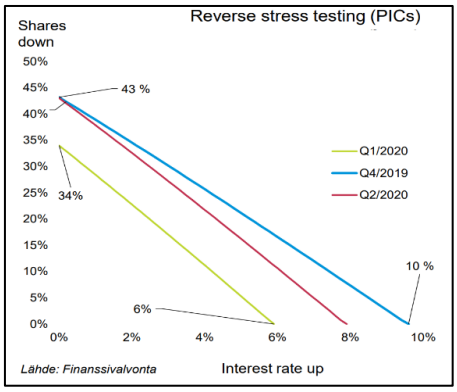
Europe	1,00	0,80	0,70	0,70	0,70	-0,20	0,00	0,60	0,70	0,70	0,20	0,20	0,00	0,00	0,89	0,20	0,00	0,00
USA and Canada	0,80	1,00	0,70	0,70	0,70	-0,20	0,00	0,60	0,70	0,70	0,20	0,20	0,00	0,00	0,89	0,20	0,00	0,00
Developing countries	0,70	0,70	1,00	0,70	0,70	-0,20	0,00	0,60	0,70	0,70	0,20	0,20	0,00	0,00	0,86	0,20	0,00	0,00
Asia and Pacific	0,70	0,70	0,70	1,00	0,70	-0,20	0,00	0,60	0,70	0,70	0,20	0,20	0,00	0,00	0,86	0,20	0,00	0,00
Non listed and private equities	0,70	0,70	0,70	0,70	1,00	0,00	0,00	0,60	0,70	0,70	0,20	0,20	0,00	0,00	0,78	0,20	0,00	0,00
Interest rate risk	-0,20	-0,20	-0,20	-0,20	0,00	1,00	0,00	-0,40	-0,40	-0,40	0,00	0,00	0,00	0,00	-0,24	0,20	0,00	0,00
AAA-AA gov	0,00	0,00	0,00	0,00	0,00	0,00	1,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
AAA-AA (ex govs)	0,60	0,60	0,60	0,60	0,60	-0,40	0,00	1,00	0,90	0,80	0,10	0,00	0,00	0,00	0,69	0,20	0,00	0,00
A-BBB	0,70	0,70	0,70	0,70	0,70	-0,40	0,00	0,90	1,00	0,90	0,10	0,00	0,00	0,00	0,80	0,20	0,00	0,00
BB or below	0,70	0,70	0,70	0,70	0,70	-0,40	0,00	0,80	0,90	1,00	0,10	0,00	0,00	0,00	0,79	0,20	0,00	0,00
Housing and lands	0,20	0,20	0,20	0,20	0,20	0,00	0,00	0,10	0,10	0,10	1,00	0,80	0,00	0,00	0,12	0,20	0,00	0,00
Commercial buildings	0,20	0,20	0,20	0,20	0,20	0,00	0,00	0,00	0,00	0,00	0,80	1,00	0,00	0,00	0,12	0,20	0,00	0,00
Currency	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,00	0,00	0,00	0,00	0,00	0,00
Commodities	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,00	0,00	0,00	0,00	0,00
Required rate of return	0,89	0,89	0,86	0,86	0,78	-0,24	0,00	0,69	0,80	0,79	0,12	0,12	0,00	0,00	1,00	0,19	0,00	0,00
Insurance risk	0,20	0,20	0,20	0,20	0,20	0,20	0,00	0,20	0,20	0,20	0,20	0,20	0,00	0,00	0,19	1,00	0,00	0,00
Residual risk (example hedge funds)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,00	0,00
Other relevant risk	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,00

Source: FIN-FSA

74. As part of on-going supervision, the FIN-FSA conducts stress tests on solvency for the PICs. A fundamental part of the stress test is to consider how large a change in key inputs is needed to force the PICs to breach the regulatory thresholds. As the text chart shows, the required fall in equity for exapmle will change over time depending on PIC solvency levels and market conditions. Larger falls in equity prices (over 40 percent) were needed at end-2019 or in Q2 2020 to force solvency rules to be breached, than in the quarter impacted by COVID (Q1 2020), where a fall 10 percentages point lower would trigger limits overall. The stress testing is in relation to a 97 percent probability that PIC solvency capital will be sufficient over a one-year horizon—and hence is clearly linked to the standards insurance based 99.5 percet one-year risk calculation. But whereas an insurer may be unable to pay claims due if it faces a significant

one-year shock, the PIC based solvency stress test does not appear to link directly to the factors that would impact the long-term returns of the PICs. If there is an impact on long-run performance and funding, e.g., volatility leading to liquidity issues that precipitate a fire-sale then these are very legitimate issues on which to focus. But imposing a 97 percent one year stress test on institutions that have a long-run mandate and purpose does not apear to deliver much benefit or mitigate the risks facing PICs or potentially caused by them.

FIN-FSA Reverse Stress Tests for PICs



Source: FIN-FSA

75. The biggest supervisory enagement in recent years was with one of the PICs subject to special supervisory oversight due to concerns over governance, but with the major escalation in supervisory scrutiny following a breach of the solvency limit. The FIN-FSA's risk based supervision matrix (Section 2) includes a key focus on governance. There is also a process for off-site and on-site supevision, but this is an area where resource constraints can limit the amount of focus on indivudual PICs. Governance concerns had been noted in the PIC, but these had not yet led to a full-scale supervisory intervention. However, once the PIC in question breached the solvency limit, the supervisory intervention rapidly escalated and concluded that the breach in the solvency limit was a consequence of governance failures.

76. Although the solvency breach was only for one day, the resulting scrutiny led to a major reorganisation of the PIC in question when significant governnace issues were confirmed. The FIN-FSA appointed an Ombudsman to oversee the PIC in December 2020. The resulting changes led to a simplification of the management structure, along with the replacement of the CEO. The intervention formally ended at end-June 2022. However, the process of change at the PIC has continued, with the latest developments being a round of redundancies. Regardless of the underlying truth of the issue, the experience is taken as a cautionary tale by market participants of the risk of breaching short-term solvency rules even in the context of the more flexible post-2017 Solvency Regulation environment.

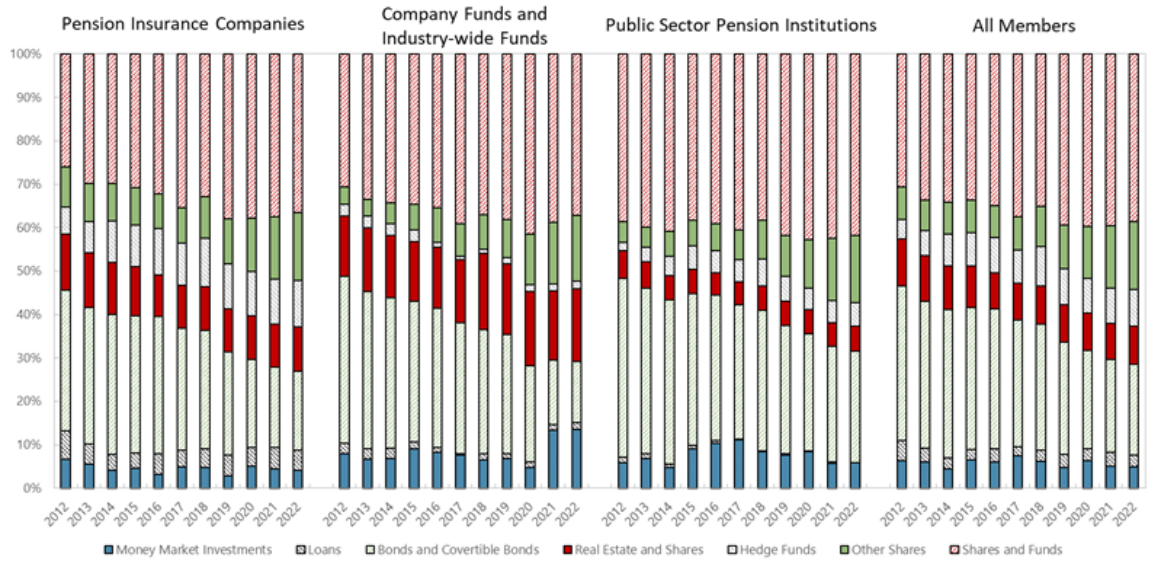
77. The key question for the FIN-FSA is whether the strength and speed of the intervention would have occurred without the breach of the solvency limit. The breach only required a company to report on a plan to restore solvency. It is possible that resource constraints inhibited a full escalation of the supervision prior to the solvency breach, and the breach iteslf created the conditions for a signficiant intervention. From a stability perspective, it is vital that governance concerns led to swift interventions, given their importance in many examples of market disfunction.

PENSION INSURANCE INVESTMENT STRATEGY

78. One way to look at PIC investment strategies and understand the implications of the Solvency Regulations is to compare them with the other major pension investors in the

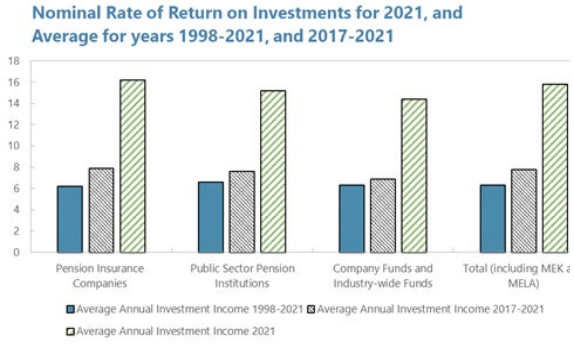
earnings-related pension funds—public pension funds. Figure 6 shows how the broad asset allocation for each type of pension fund has changed over the period 2012–22. The data shows that the PICs significantly increased their equity allocation (red) over the period, so that by 2022 their allocation was much closer to that of public sector institutions, who are unconstrained by the solvency rules that apply to the PICs. Both types of institution increased their 'other equity' which is driven by private equity—which for the PICs became significantly easier after regulatory changes in 2017, after which their allocation nearly doubled. The PICs have consistently had higher allocations to hedge funds (purple) and real estate (white) than the public funds. The reason for this difference is not entirely clear, but for hedge funds appears to be a feature of different views on the ability to select managers who will justify their costs. Both types of institution reduced their fixed income allocations (dark blue) as other types of investment were growing. It is noticeable that the allocation to money market funds and cash-like investments is relatively high. It would be useful to conduct a deeper and more sophisticated analysis that reviewed all aspects driving investment strategies, including different views on and reactions to interest rates changes over time.

Figure 6. Finland: Investment Allocation of PICs Compared to Other Pension Funds 2012–22



Source: TELA

79. Regulatory changes in 2014, and particularly in 2017, appear to have significantly altered the PIC asset allocation from one that was constrained in terms of listed and private equity, to one that had fewer constraints. To see the impact of the different asset allocations, the rates of return of the different pension providers can be compared. The text chart shows nominal rates of return over the full period of 1997-2021, returns over the period 2017-21, and returns in the last full year for which data are available, 2021.



Source: FIN-FSA

80. If regulatory requirements are a constraint, then the PICs would be expected to underperform in the period 1997–2017 relative to public pension funds, but this effect should not be seen as much in the period 2017 onwards. This is indeed what the data show, with the public sector funds returning an average return of 6.6 percent vs. 6.2 percent for the PICs over the full sample period. Between 2017–21 the PICs had the highest performance (7.9 percent vs. 7.6 percent) as well as in 2021 (16.2 percent vs. 15.2 percent). These latter two time periods are too short to draw strong conclusions about relative performance in general but do suggest a diminution in any impact. Moreover, the fact that the public sector funds post a higher average performance over the full sample period despite slightly under performing the PICs in the past 5 years shows that the outperformance earlier in the sample is higher than the average of 0.4 percentage points. While this difference may appear small, over a 25-year period it is 9.4 percent. To put this in context of the EUR 260 billion in total assets in the earnings-related pension funds, 9.4 percent would be worth EUR 24.4 billion.

A. Home Bias and International Return Comparisons

81. One issue raised in the 2016 FSAP was whether there was excessive home bias in the investment strategy of the PICs. This can cause issues in relation to very large asset pools chasing a limited stock of assets. But equally, there are risks from cross-border asset allocations. Home bias was common for pension funds in the past and creates concentration risk for a pension member whose house, job and family are all exposed to the same home country risk. Analysis by the ETK in 2015 comparing the rates of return of the PICs with regional and global comparators, found that the PICs had underperformed in relative terms—with a key reason being relatively higher allocations to Finland.[27] Such international comparisons are often difficult, and there are many important differences between the funds, but PICs did have a higher share of assets in their home country than either the public funds in Finland or many (but not all) of the other funds in the study.

82. Since 2011 there has been a decrease in the share of PIC assets in Finland, as well as a smaller reduction in investments by the public pension funds in Finland from a lower base. This is shown in Figure 7 below—with the share in Finland in blue and falling for the PICs from near 40 to 25 percent from 2011 to 2022. The growth in assets in the 'Rest of the World' category outside the euro area perhaps overstates the degree of global diversification since most of this is to Europe—both the non-euro EU and the non-EU.

83. ETK's analysis splits the results between buffer funds not subject to solvency rules (like public pension funds), and pension funds subject to solvency rules like the PICs,[28]

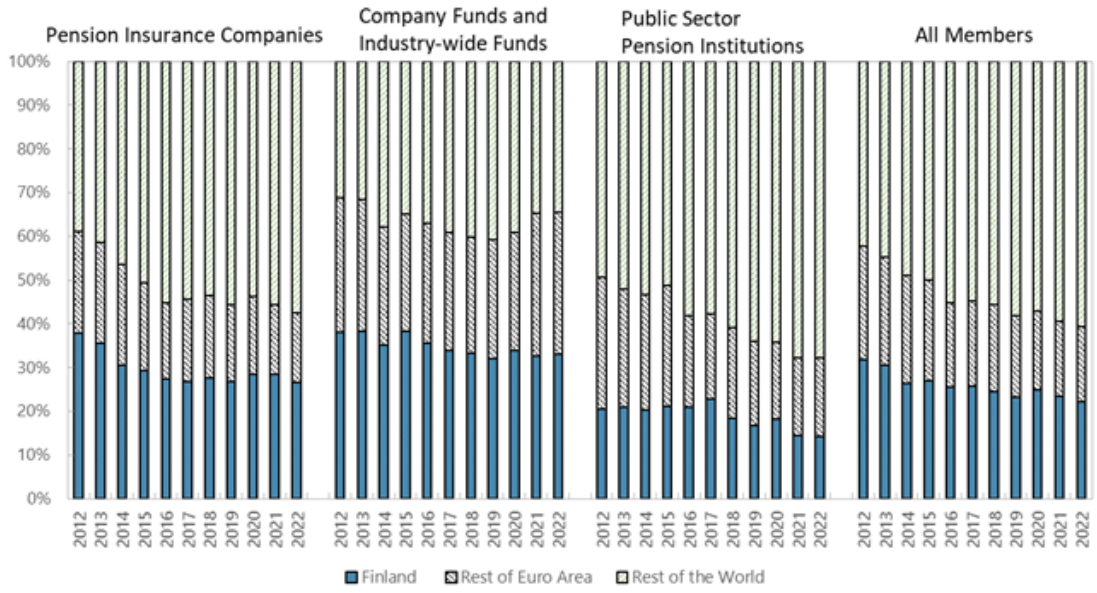
[27] See ETK (2015) International comparison of the regulation of pension asset investments (julkari.fi)

[28] The full list of funds who are not subject to solvency regulation is: the Swedish buffer funds (AP1-AP6); the Canada Pension Plan Investment Board (CPPIB); the Norwegian Government Pension Fund Global (SPU); the Japanese Government Pension Investment Fund (GPIF); the National Pension Service of Korea (NPS); Keva; the State Pension Fund (VER), and the Church Pension Fund (KER).

The full list of funds who are subject to solvency regulation is: the California Public Employees' Retirement System (CalPERS); the Stichting Pensioenfonds (ABP) and the Pensioenfonds Zorg en Welzijn (PFZW) of the Netherlands; the Swedish occupational pension funds Alecta and AMF; the Danish occupational pension fund ATP; the Finnish earnings-related pension insurance companies (Elo, Ilmarinen, Varma, Veritas), and the Seafarers' Pension Fund (MEK).

which allows for a benchmarking of PIC investment strategies. The latest results using 2021 data show that the relative performance of the PICs improved compared to 2014 data. While there are issues with comparability and time periods, the twin impact of increased allocation to equity, including private equity, and greater geographical diversification have both served to improve relative performance.[29] It is also important to note that the comparator group are high-performing funds in the region and globally, and that both they and the Finnish PICs are well above the average rate of return seen in similar pension funds globally.

Figure 7. Finland: Investments by Country 2012–22



Source: TELA

B. PIC Equity Investment: Cyclicality and Correlation

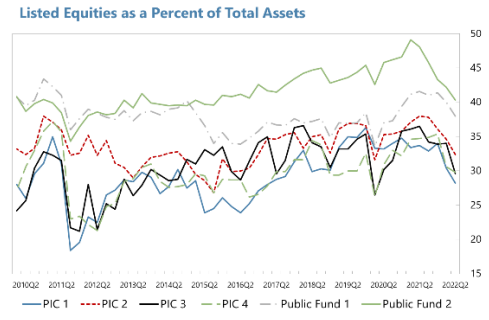
84. Analysis of equity investment by pension insurance companies suggest that they follow a more volatile pattern, often accompanied by sales during downturns. Using quarterly data from the Finnish Pension Alliance (TELA), Figure 8 (left) shows investment of each pension fund in listed equities as a share of their total investment. The analysis focuses on listed equity shares, as private equity and unlisted equities may have different cyclical behaviors.[30] As suggested by the data, share of listed equities is more stable for the public pension funds compared with those for the PICs. Also, they constitute a bigger share of the portfolios for the public pension funds.

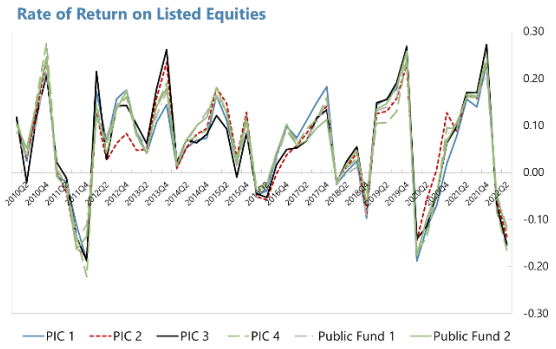
85. Notwithstanding differences in investment portfolios, differences in riskiness of the portfolios are not stark. The quarterly rates of return for listed equities for each of the funds are similar across the portfolios (Figure 8, right). However, large negative shocks to equity prices often led to sales of equities by PICs (in 2011 and 2020). This contrasts with the behavior by public pension funds who lowered their exposure to listed shares at lower rates.

[29] See ETK (2022) Investment Return on Pension Assets - Finnish Centre for Pensions (etk.fi)

[30] The main findings of this analysis would be the same qualitatively when focusing on total equity investment.

Figure 8. Finland: Exposure and Return: Listed Equities 2010–22

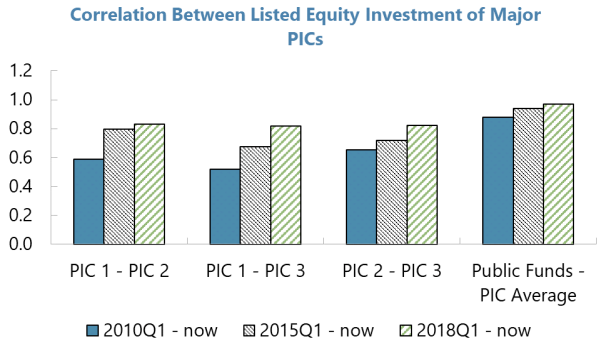




Source: TELA and IMF Staff Calculations

86. The analysis reveals a herding behavior in the portfolio allocation of the pension funds, possibly due to the substance of the solvency regulations, and the way in which they drive the behavior of market participants (Figure 9). Major PICs have acquired or sold listed equity in a highly correlated manner. Correlation between the investment behavior of major PICs has been high and grown over time, surpassing 80 percent since 2018. As investment restrictions on the PICs have been loosened (in 2014 and 2017) while retaining the 1-year solvency focus, the PIC investment allocation has become more like that of pension funds with greater than 90 percent correlation in the recent years. Furthermore, public pension funds' investment strategy is correlated at levels close to and above 90 percent with all pension insurance companies.

Figure 9. Finland: Pairwise Correlation in Equity Investment



Since 2010Q1	PIC 1	PIC 2	PIC 3	PIC 4	Public Fund 1	Public Fund 2
PIC 1	1					
PIC 2	0.59	1				
PIC 3	0.49	0.70	0.66	1		
PIC 4	0.65	0.88	0.92	0.79		
Public Fund 1	0.58	0.90	0.69	0.76	1	
Public Fund 2	0.57	0.86	0.63	0.72	0.93	1

Since 2018Q1	PIC 1	PIC 2	PIC 3	PIC 4	Public Fund 1	Public Fund 2
PIC 1	1					
PIC 2	0.83	1				
PIC 3	0.82	0.82	1			
PIC 3	0.72	0.87	0.82	1		
Public Fund 1	0.86	0.91	0.91	0.91	1	
Public Fund 2	0.87	0.94	0.88	0.88	0.97	1

Source: TELA and IMF Staff Calculations

87. Investment patterns of all pension funds have been countercyclical during the entire period, however, less so for PICs. A procyclical (countercyclical) investment behavior would mean that more stocks are acquired (sold) during boom periods, and they are sold (acquired) during bust periods. The state and government local funds have been investing more countercyclically compared with the PICs. The difference has not been significant since 2018 when regulation pressures have been less on the PICs (Figure 10). However, it is too early to tell whether the procyclical impact under the pre-2017 regulations has been fully removed—not least because market participants have been clear that such impacts still exist. But, even if the procyclical impacts were fully removed, solvency regulations should focus on long-term risk, consistent with the long-run purpose of the PICs for the Finnish pension system

88. Over the period up to 2017 in particular, major PICs show patterns of selling stocks during stock market downturns while public pension funds invest more stably during periods of distress. Solvency requirements on PICs appear to have impacted their investment behavior in equity markets. While public pension funds have been able to invest countercyclically during periods of decline in equity markets, this has not been the case for the PICs who have often pro-cyclically sold listed equities in response to negative shocks to the equity markets, particularly prior to 2017. Figure 10 shows the cyclicality of investment in quarters when pension funds experienced negative returns on their equity portfolios. Although public pension funds could continue to invest countercyclically during those periods (i.e., purchasing stocks when they fall), two of the three major PICs followed a different strategy. Two of the PICs show a-cyclical investment patterns during such periods with cyclicality estimated close to zero. Listed equities are not the only risk-seeking assets held by PICs, but they are the ones that are daily priced and hence most sensitive to valuation changes. Private equity, with quarterly pricing, will not show the same volatility in the calculations for the solvency rules and hence be less subject to pressures for short-term sales to protect a solvency position.

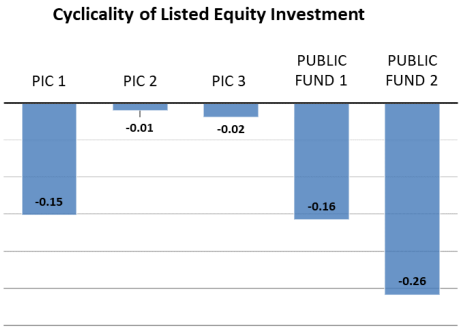
Figure 10. Finland: Cyclicality of Equity Investment

Cyclicality of Listed Equity Investment Over Time

Cyclicality	PIC 1	PIC 2	PIC 3	PIC 4	Public Fund 1	Public Fund 2
2010Q1 - 2022Q2	-0.40	-0.65	-0.30	-0.47	-0.69	-0.79
2010Q1 - 2017Q4	-0.26	-0.61	-0.05	-0.34	-0.67	-0.78
2018Q1 - 2022Q2	-0.79	-0.70	-0.59	-0.58	-0.69	-0.79

Note: Cyclicality is calculated as the correlation between net acquisition of listed shares with their valuation changes, both expressed as share of stock of shares in the end of previous quarter.

Cyclicality of Listed Equity Investment in Downturns



Source: TELA and IMF Staff Calculations

C. Alternative Approaches to Long-Run Defined Benefit Liabilities

89. Although the focus of this Note is on short-term financial vulnerabilities, it is nevertheless linked to the long-run sustainability of the system because the appropriate regulatory and supervisory framework for the PICs depends on understanding their role and the risks they face. The fundamental purpose of the PICs is to generate assets that partly fund the DB pension liabilities that employees earn in the private sector. There is a broadly equivalent institution for local government employees, and a buffer fund for central government pension liabilities.[31] Both are substantial, and the former is the largest earnings-related pension fund in Finland and the latter the firth largest (EUR 67 billion and EUR 24 billion respectively).

90. Long-term pension liabilities are funded by a combination of current contributions (pay as you go, PAYG) plus funding from the earnings-related funds. The better the long-run returns from the funds, the lower the pressure for increased contributions from employers and workers to pay for the (rising) costs of pension entitlements. Since the PICs are excluded

[31] There are additional specialist earnings related pension funds for specific groups such as the church, seafarers and farmers that are not discussed in detail in this note.

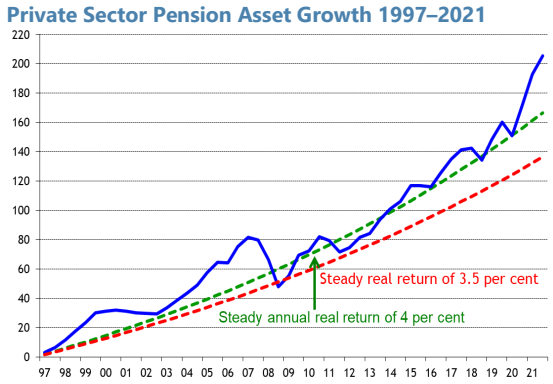
from EU pensions or insurance regulation because they are part of the Social Security system, Finland can choose the most appropriate regulatory and supervisory approach under national legislation.

91. The relative funding ratio for the different earnings-related pension plans is a useful metric of success for the system. For private sector employees covered by the PICs, the funding ratio at the end of 2017 was 30.6 percent.[32] For central and local government workers, the funding ratio was 20.7 percent and 38.1 percent, respectively.

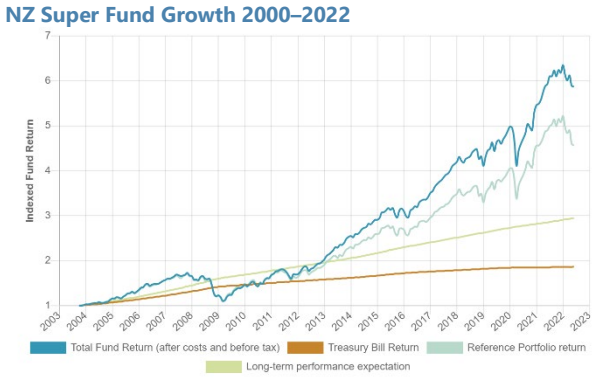
92. There are many different reasons for the different funding levels, including that contributions to public pensions are a higher share of wages than to the PICs. But the key point is that understanding the performance of the PICs is as much about understanding the long-term evolution of the funding ratio as it is about short-term changes in a solvency ratio. There are other approaches used in social security funds around the world where there is a stock of assets to partially fund the core liabilities of a social security system. Some examples work well, and some fail to prevent the pension payments ultimately exhausting the assets. But those examples of failure are where the government or social partners do not have regular discussions about the balance between costs, contributions, and assets. Finland has a good tradition of discussing these issues and introducing reforms (e.g., to have retirement ages change with life expectancy or indeed to create the PICs and other buffer funds in the first place).

93. One way to consider PIC performance is through long-run average asset returns. Figure 11 (left panel) shows the growth in private sector pension assets—overwhelmingly PIC assets—between 1997 and 2021. It clearly shows the significant volatility during periods of market stress such as 2007–08, 2018 and 2020. But most importantly it shows how the assets have grown by over 4 percent real on average over the 24 years since 1997. This is above the projected rates of return used by ETK to investigate long-run sustainability, which in the last projections used a rate of 2.5 percent nominal until 2028 and then 3.5 percent thereafter. The fact that PIC asset growth has exceeded these figures is one reason why the (partial) funding of the pension liabilities has increased and was an important feature of the new ETK October 2022 projections for the Finnish pension system.

Figure 11. Finland: Comparison of Fund Returns—Finland and New Zealand



Source: TELA



Source: NZ Super Fund

[32] 2017 is the latest year included in the 2021 ETK report, but new figures will be available in late 2022.

94. The approach of assessing performance of a pension institution realtive to long-run funding can be seen, for example, in the regulatory and supervisory framework for New Zealand's Superannuation Fund (NZ Super). [33] Like the PICs (and public pension funds), New Zealand set up the fund to invest assets now to generate a stock of assets and future income to help pay for rising DB pension liabilities. The Fund has a legal requirement to "maximize returns without undue risk to the Fund as a whole," with a specific target to deliver 2.8 percent over Treasury Bills over a 20-year period.[34] The Fund Board determined an asset allocation that would be most likely to deliver the long-run target. This is one that had a relatively high allocation to equity, and had a very substantial allocation outside New Zealand, as the fund would grow rapidly and find it challenging to find investment opportunities locally. Investment outside of New Zealand would also help diversify the funding of pensions which otherwise relies on the New Zealand workers and government alone.

95. The approach adopted in New Zealand led to significant downturns during the 2007–08 Global Financial Crisis, which came early in the life of the fund. But the Board stuck to the strategy and did not sell off assets during the downturn—and have been able to significantly outperform their long-term target (Figure 11, right). Given the inherent volatility in the underlying portfolio, a significant margin of outperformance above the target is clearly prudent. NZ Super have been very effective at regularly (and publicly) stress testing their strategy against further major global disruptions, to continually test and adapt their approach. The key to their performance is a robust, stress-tested, long-run strategy, effective implementation, and clear and public benchmarking on all aspects of investment performance and governance.

96. Given the long-run focus of the system, the solvency rules for the PICs would benefit from further changes to avoid the short-term focus and historically procyclical behavior that they have promoted, and to enhance financial stability. Despite useful changes in 2017, the PICs continue to monitor and feel the need to react to the short-term changes in solvency ratios as part of their investment strategy. Reforms to solvency rules would help the PICs to take a longer-term approach to investing that would be more consistent with the nature of their liabilities and could enhance the overall long-term returns of the system, with potential long-term benefits for employers, employees, and long-run financial and fiscal sustainability.

97. A long-run focus does not mean no consideration of short-term risk, but it does mean that the focus on short-term volatility would have to be driven by a clear identification of a negative impact for long-term performance. Short-run volatility is not the same as long-run risk, particularly for pension funds. But if short-run volatility creates real issues (e.g., liquidity problems that force a fire sale of assets) then it does impact long-term performance and there is a clear justification for intervention. Likewise, short-term monitoring is an important part of ensuring that investment decisions are delivering a desired long-term strategic asset allocation. Creating a unified framework that links short-term supervisory actions to required long-term performance is hence the most desirable approach.

[33] Superannuation is the term used for pension in New Zealand and Australia, but it means the same.

[34] https://www.nzsuperfund.nz/how-we-invest/balancing-risk-and-return/

Appendix I. Pandemic Measures by the Finnish Government Related to the Financial Sector

Adoption Date	Type of Measure	Sector	Measure
03/27/2020			On May 27, 2020, Government Decree was issued to extend the deadline for the financial recovery plan. https://www.finlex.fi/fi/laki/alkup/2020/20200144
03/20/2020	Other measures of fiscal nature	Non-financial corporations	State Pension Fund authorised to buy commercial paper.
03/20/2020	Tax deferrals	All sectors	Deferral of tax payments and TyEL (pension insurance) contributions 3–4.5.
03/20/2020	Other measures of fiscal nature	Non-financial corporations	Easier reborrowing of pension insurance contributions. The PICs were allowed to refuse to give the loan for liquidity reasons.
03/20/2020	Direct grants	Non-financial corporations	Pension insurance contributions lowered by 1.05.
03/17/2020	SyRB	Banking sector	Abolishment of Systemic Risk Buffer.
03/17/2020	O-SII	Banking sector	Lowering of O-SII Buffer from 2 percent to 1 percent for OP Group.
03/15/2020	Other measure	Non-financial corporations	BoF restarted to invest in the domestic corporate paper market. The initial size of the program was 500 million EUR, but in the board meeting on 19.3.2020 the Board of BoF decided to double the size to 1 billion EUR. The program has been scaled down to zero.

Source: European Systemic Risk Board; Finland (europa.eu)