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FINLAND

FINANCIAL SYSTEM STABILITY ASSESSMENT

January 2023

This paper on Finland was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on January 3, 2023.

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KEY ISSUES

Context: Finland has further improved the regulation and supervision of its financial sector since the 2016 FSAP, in part driven by European legislation and institutions. The size of the banking sector increased significantly in 2018 with the redomicilation of Nordea. Finland weathered the COVID-19 pandemic well relative to other economies, with fiscal support and interventions from the authorities. However, Finland is now navigating a weaker economic outlook given the war in Ukraine and ensuing energy crisis, despite limited direct financial exposures to Russia.

Findings: Risks to financial stability come from a large banking sector, which is highly concentrated and dominated by a few institutions, and is interconnected with other financial systems in the Nordic region. Under a severe but plausible macro-financial scenario, bank solvency falls sharply but remains above regulatory requirements. However, banks remain vulnerable to liquidity shocks due to their reliance on short-term wholesale funding. Household debt levels have increased in recent years to their highest levels, exacerbated further by the pandemic and related policy response. In the Non-bank Financial Intermediation (NBFI) sector, the Pension Insurance Companies (PICs) account for a large share of nonbank assets, have highly correlated portfolios, and exhibit potential procyclical behavior.

Policy Advice: The Finnish authorities should continue to enhance their strong oversight of the financial system. In the context of the improvements made since the 2016 FSAP and the highlighted risks and vulnerabilities, the recommendations focus on: (i) further improvements to governance and resourcing for supervision and regulation; (ii) enhancing the macroprudential toolkit to address household vulnerabilities; (iii) addressing procyclicality in the pension insurance sector; (iv) ensuring the effective operationalization of crisis management arrangements; and (v) strengthening AML/CFT supervision.

Approved By
May Khamis and Oya Celasun

Prepared By
Monetary and Capital Markets Department

This report is based on the assessment work under the Financial Sector Assessment Program (FSAP) conducted during April and September 2022. The findings were discussed with the authorities in September 2022 (the close of the FSAP) and in November 2022 (the Article IV Consultation).

- The team was led by Luis Brandao Marques, and included James Knight (Deputy Mission Chief), Mohamed Diaby, Ebru Sonbul Iskender, Fumitaka Nakamura, Apostolos Panagiotopoulos (all MCM); Seyed Reza Yousefi (EUR); Maksym Markevych (LEG); and William Price and Eamonn White (External Experts). Jianhong Liu provided research assistance and Joanna Zaffaroni provided administrative assistance. The FSAP team also collaborated closely with the EUR Article IV Consultation team.

- FSAPs assess the stability of the financial system as a whole and not that of individual institutions. They are intended to help countries identify key sources of systemic risk in the financial sector and implement policies to enhance its resilience to shocks and contagion. Certain categories of risk affecting financial institutions, such as operational or legal risk, or risk related to fraud, are not covered in FSAPs.

- Finland is deemed by the Fund to have a systemically important financial sector according to SM/10/235 (9/16/2010), and the stability assessment under this FSAP is part of bilateral surveillance under Article IV of the Fund's Articles of Agreement.

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TABLES

APPENDICES

Glossary

AML/CFT	Anti-Money Laundering/Combating the Financing of Terrorism
ACI	Act on Credit Institutions
BCP	Basel Core Principles
BoF	Bank of Finland
BRRD	Bank Recovery and Resolution Directive
CCoB	Capital Conservation Buffer
CCyB	Countercyclical Capital Buffer
CET1	Common Equity Tier 1
COREP	Common Reporting Framework
CRD	Capital Requirements Directive
CRE	Commercial Real Estate
C&E	Climate and Environmental
DSTI	Debt Service to Income
DTI	Debt to Income
ECB	European Central Bank
ELA	Emergency Liquidity Assistance
ESMA	European Securities and Markets Authority
ETK	Finnish Center for Pensions
EU	European Union
FATF	Financial Action Task Force
FFSA (RVV)	Financial Stability Authority
FIN-FSA	Finland Financial Supervisory Authority
FSA	Financial Sector Assessment
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
FSR	Financial Stability Report
FSSA	Financial Sector Stability Assessment
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GFM	Global Macrofinancial Model
HQLA	High-Quality Liquid Assets
ICT	Information and Communication Technologies
LCR	Liquidity Coverage Ratio
LGD	Loss Given Default
LSI	Less Significant Institution
LTV	Loan-to-value
ML/TF	Money Laundering or Terrorist Financing
MoF	Ministry of Finance
MoSAH	Ministry of Social Affairs and Health
NBFI	Nonbank Financial Intermediation
MREL	Minimum Requirement for Own Funds and Eligible Liabilities
NESA	National Emergency Supply Agency
NFC	Non-financial Corporate
NII	Net Interest Income

NIM	Net Interest Margins
Non-II	Non-Interest Income
NPL	Non-performing Loan
NSFR	Net Stable Funding Ratio
OCI	Other Comprehensive Income
O-SII	Other Systemically Important Institutions
PIC	Pension Insurance Company
RWA	Risk Weighted Assets
SI	Significant Institution
SRA	Systemic Risk Assessment
SRB	Single Resolution Board
SREP	Supervisory Review and Evaluation Program
SSM	Single Supervisory Mechanism
STeM	Stress Test Matrix
SyRB	Systemic Risk Buffer
TRIM	Targeted Review of Internal Models

EXECUTIVE SUMMARY

Finland is a small open economy that is significantly exposed to global financial and economic conditions. The economy weathered the COVID-19 pandemic well, thanks to fiscal policy and other interventions. However, Finland is now navigating a weaker economic outlook given the war in Ukraine and ensuing energy crisis.

The strong oversight framework has been further enhanced since the 2016 FSAP, but further important work remains. The authorities have made progress in a range of areas, as reported in subsequent Article IV consultations, in part driven by EU legislation. Legislation for a Systemic Risk Buffer (SyRB) was approved, and efforts to establish a credit register are underway. However, the authorities have not sufficiently expanded the macroprudential toolkit, due to heavy resistance from the financial sector and a lack of political support. Appendix I provides a list of the main 2016 FSAP recommendations and implementation status.

Risks to financial stability emanate from a concentrated banking sector, high household indebtedness, and interconnections in the Nordic region. The Finnish banking sector is large, highly concentrated, and is interconnected with other financial systems in the Nordic region. Household debt levels have increased in recent years to their highest levels, exacerbated by the pandemic. In the non-bank financial intermediation (NBFI) sector, the Pension Insurance Companies (PICs) account for a large share of nonbank assets, with highly correlated portfolios, and have exhibited potential procyclical behavior.

Stress tests indicate that the banking system appears resilient to severe macro-financial shocks but remains vulnerable to liquidity shocks. Under a severe but plausible macro-financial scenario, bank solvency falls sharply but remains above regulatory requirements. However, banks remain vulnerable to liquidity shocks due to their reliance on short-term wholesale funding. Cross-border analysis reveals that the Finnish banking sector is vulnerable to a potential systemic event in Nordic countries due to strong linkages and high exposures.

The banking supervisory framework is sound and operates in the context of EU regulations and supervisory institutions. The authorities have made good progress in the implementation of the recommendations of the 2016 Basel Core Principles (BCP) assessment. Being subject to EU regulations and requirements has helped to enhance financial sector oversight in Finland. However, important issues around strengthening operational independence of the Finland Financial Supervisory Authority (FIN-FSA) and legal protection of FIN-FSA (as well as Financial Stability Authority (FFSA)) staff are pending.

The FSAP recommendations reflect steps to address existing risks and meet new challenges:

- **Cross-cutting** issues include the need to strengthen the legal protection for officials, staff, and agents of all financial oversight agencies and support the independence of the FIN-FSA. Financial resources available to cover traditional (including NBFI) and emerging risks like Information and Communication Technologies (ICT), cyber, and climate need to be increased

across prudential and resolution regimes. Resources for the FIN-FSA and FFSA should be commensurate with their responsibilities. This could be achieved through the reallocation of resources from other areas of work, gains in efficiency including using suptech, or through a larger financial envelope via increased fees and/or a greater contribution from the public sector. The FFSA should also ensure that its budget is sufficient to enable the rapid procurement of the full range of external advisory support to carry out its statutory function.

- **Banking supervision could be further improved** by conducting further analysis on banks' IFRS-9 implementation and including rules on the appointment of a sufficient number of independent directors to boards of directors and including independency criteria in legislation.

- **The macroprudential toolkit should be expanded** and the systemic risk monitoring framework strengthened to ensure the effective conduct of macroprudential policy. Macroprudential policy tools, including caps on debt-to-income (DTI) or debt-service-to-income (DSTI) ratios should be included in the toolkit. The authorities should enhance their systemic risk monitoring framework. The authorities should also consider introducing a positive rate for the Counter-Cyclical Capital Buffer (CCyB) in a standard risk environment, which requires a legislative amendment.

- **Solvency rules for PICs should be further changed** to avoid a short-term focus and fully mitigate procyclical behavior, and thus enhance financial stability. The FIN-FSA and the Bank of Finland (BoF) should enhance the public disclosure of analysis and assessment of macroprudential risks in the NBFI sector.

- **Resolution and crisis management** should be supported by greater coordination of authorities' preparation and management of future crises. The FFSA should publish a framework for scoring less significant institution (LSI) resolvability (or implement a Single Resolution Board framework for such purposes) and a bail-in mechanic that addresses key policy choices. The BoF should ensure that it has fully operational liquidity facilities for resolution purposes and test these lending arrangements with its counterparties. The Deposit Guarantee Fund (DGF) should have sufficient funds to ensure its financial autonomy and minimize its dependency on borrowing from banks to payout.

- **Anti-Money Laundering/Combating the Financing of Terrorism (AML/CFT) policy.** Efforts are needed to strengthen the effectiveness of AML/CFT supervision.

The FSAP recommends targeted measures outlined in Table 1.

Table 1. Finland: FSAP Key Recommendations			
	Recommendation	**Addressee**	**Timing[1]**
Oversight—Cross cutting			
1	Strengthen the legal and operational framework for legal protection of officials, staff, and agents of all financial oversight agencies.	MOF	NT
2	Secure FIN-FSA's independence by ensuring that: (i) the law is amended to ensure that future Board members are not officials of Ministries; (ii) a statement of the reasons for the dismissal of Director General is clearly laid down in the law and publicly disclosed if a dismissal should ever take place; and (iii) Board members have diverse backgrounds and experience in FIN-FSA's purview.	MOF	NT
3	Increase the resources available to the FIN-FSA, FFSA and other financial oversight agencies so that they are commensurate with their responsibilities and allow them to cover both traditional and emerging risks like ICT, cyber, and climate.	BoF, FFSA and MOF	NT
Macroprudential Policy			
4	Consider providing the FIN-FSA Board with hard powers to issue regulations on macroprudential policy, including the adoption of new instruments; and/or semi-hard powers to issue recommendations on a comply or explain basis.	MOF	MT
5	Add DTI and DSTI limits to the macroprudential policy toolkit; and introduce a positive rate of CCyB in the standard risk environment.	MOF	MT
6	Enhance the systemic risk monitoring by strengthening the disaggregated data analysis, corporate sector vulnerability analysis and addressing existing data gaps.	BoF and FIN-FSA	MT
Systemic Risk Assessment			
7	Enhance liquidity buffers to cover a predetermined threshold of wholesale funding outflows over a five-day horizon.	FIN-FSA	NT
8	Lead an effort to conduct a Nordic-wide stress test coordinated exercise.	FIN-FSA, and BoF	MT
Banking Regulation and Supervision			
9	Conduct further analysis on banks' IFRS-9 implementation, more specifically regarding staging of exposures and functioning of expected credit loss models.	FIN-FSA	NT
10	Include rules on the appointment of a sufficient number of independent directors (supervisory board members) and independency criteria in the legislation.	MOF, FIN-FSA	NT
Nonbank Financial Institutions			
11	Amend PIC solvency regulations to remove remaining procyclical effects and develop new short-term liquidity rules.	MoSAH FIN-FSA	NT
12	Enhance the public disclosure of analysis and assessment of macroprudential risks in the NBFI sector.	BoF, FIN-FSA	NT
Crisis Management			
13	Publish a policy on bail-in and transfer mechanics that addresses policy choices on valuation, issuance of new instruments and change in control requirements.	FFSA	NT
14	Ensure that emergency liquidity assistance processes, procedures and operational capabilities are sufficient to support a rapid provision of temporary collateralized liquidity for FIs in resolution, tested internally and with external counterparties annually.	BoF	NT, C
15	Centralize cross-authority crisis cooperation and coordination in the Crisis Management Cooperation Group.	FFSA, FIN-FSA, BoF, MoF, MoSAH	I, C
Financial Integrity			
16	Enhance AML/CFT supervision by improving the risk-based approach and tools for AML/CFT sectoral and institutional risk assessments, with a focus on risks from cross-border and non-resident transactions.	FIN-FSA	I

[1] Timing: C = Continuous; I = Immediate (within one year); NT = Near Term (within 1-3 years); MT = Medium Term (within 3-5 years).

BACKGROUND

A. Macrofinancial Developments

1. **Before the COVID-19 pandemic, Finland had steady economic performance, and while financial conditions initially tightened sharply as the pandemic hit, monetary and fiscal measures cushioned its impact.** In the aftermath of the GFC, Finland entered a long recession led by the decline of its ICT sector, but following structural reforms, competitiveness, growth, and employment improved. The pandemic disrupted economic activity, with the Finnish government responding swiftly in mid-March 2020. The economy recovered strongly, with GDP growing by 3.5 percent, and unemployment falling to 6.7 percent at end-2021, from a 7.6 percent a year prior.

2. **Finland's GDP grew robustly in the first half of 2022, continuing strong growth from 2021, but the outlook has now deteriorated due to the energy crisis.** The authorities expect that the energy crisis will lead to a slowdown in 2023, with it pushing up consumer prices, worsening consumer confidence, and weighing on private consumption and residential real estate. Prices and availability of electricity and gas are also a concern for corporates—with the cost increase also affecting company profitability. The war will weaken the economic outlook in Finland as inflation accelerates and raises expectations for more rapid tightening of monetary policy globally.

3. **The war in Ukraine is also weakening the outlook in Finland through a reduction in trade with Russia.** While the financial system's exposures to Russia are limited, the war increases financial stability and growth risks through indirect channels. While overall trade exposures have fallen since the 2014 invasion of Crimea, Russia is still an important market for Finnish companies (Table 2).[1] Financing conditions are also tighter, and market-based funding is more expensive, while equity markets have fallen and become more volatile.

Table 2. Finland: Business Vulnerabilities by Industry

	Vulnerabilities				Credit Risks (December 2021)		
Industry	Pandemic	Energy and Commodities	Exports to Russia	Imports from Russia	Loans (Percent)	NPL (Percent)	Interest Rate (Percent)
Agriculture, forestry, and fishery		X			3	3	1.9
Mining and quarrying				X	1	2	1.8
Food products industry					2	1	1.4
Textiles industry				X	0	5	2.9
Forest industry		X		X	2	1	1.1
Chemicals industry		X	X	X	1	2	1.3
Metals industry		X		X	2	2	1.8
Electricity, gas and heating, cooling				X	15	0	0.5
Construction		X			5	3	2.1
Transport and warehousing	X	X	X	X	5	3	1.7
Accommodation and food services	X		X		1	6	2.4
Real estate		X			26	2	1.4
Art, entertainment, and recreation	X				1	5	1.9
Other Services	X				0	2	2.0

Note: The table presents vulnerabilities and credit risk indicators for each industry. Vulnerabilities from OECD value added statistics (2018); an X if trade with Russia is in the highest quartile. The credit risk columns use December 2021 credit institution data (Bank of Finland). Loans (in percent) refers to the industry's bank loans as a proportion of the total corporate loan stock, NPL (in percent) to the stock of non-performing loans as a proportion of the industry's loan stock, and Interest rate (in percent) as the weighted average interest rate on the industry's loan stock.

Source: OECD and Bank of Finland.

[1] Under 0.1 percent of banking sector assets, and 0.3 percent of total assets of insurance companies, are direct exposures to Russia.

B. Financial Sector Landscape

4. **The Finnish financial system is large, highly concentrated and dominated by a few credit institutions**. Total banking sector assets were close to 350 percent of GDP at end–2021 (Table 3), with Nordea's redomicilation in 2018 increasing them substantially.[2] The banking system remains highly concentrated, with the three largest banks—Nordea Bank, OP Financial Group, and Municipality Finance—designated as significant institutions (SIs) and supervised by the Single Supervisory Mechanism (SSM) within the European Central Bank (ECB). Subsidiaries and branches of foreign banking groups in Finland amount to 44 percent of GDP.

5. **PICs and fund managers are the most significant part of the NBFI sector, followed by insurance.** Each industry is highly concentrated, and some have significant links to major banking groups. 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. Together, the banking sector, fund management, insurance, and pensions are 518 percent of GDP.

Table 3. Finland: Financial System Assets: 2016 and 2021

	2016			2021		
Sector	**Assets**	**Number of Institutions**	**Assets (Percent of GDP)**	**Assets**	**Number of Institutions**	**Assets (Percent of GDP)**
Banking Sector (consolidated)	537,397	46	247.1	870,440	42	346.2
Domestic banking groups	185,366	10	85.2	759,029	11	301.9
of which: Three largest banking groups	157,360	3	72.3	707,190	3	281.3
Subsidiaries and branches of foreign banking groups operating in Finland	352,031	36	161.8	111,411	31	44.3
Insurance and Pension Sector	194,252	68	89.3	250,847	59	99.8
Life	58,884	11	27.1	72,953	9	29.0
Non-life	16,778	36	7.7	16,643	34	6.6
Employee pension insurance	118,590	21	54.5	161,251	16	64.1
Investment Funds	119,963	783	55.2	179,883	982	71.5
Stock Market Capitalization	203,265	145	93.4	345,689	184	137.5
Corporate Debt						
Outstanding loans and debt securities	229,054		105.3	263,744		104.9
of which: issued in Finland	155,344		71.4	176,777		70.3

Source: FIN-FSA, Bank of Finland, Statistics Finland.
Notes: Nordea is the largest bank in Finland by total assets (EUR 552 billion), and OP by market share (around 35 percent). Municipality Finance is a non-deposit taking credit institution jointly owned by the municipalities (total assets EUR 44 billion end-2020). In January 2022, the FInnish branch of Danske Bank was also designamed an SI.

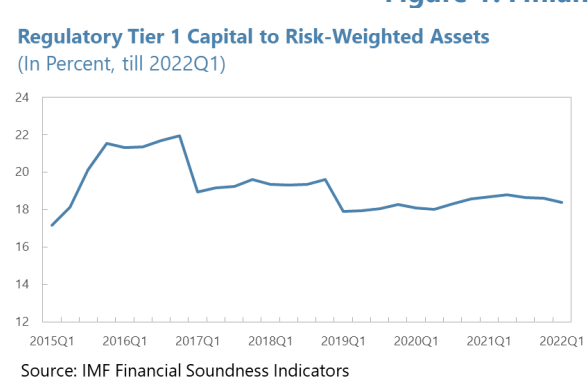
6. **The 2016 FSAP found that while Finland's banking system was well capitalized and profitable, there were some vulnerabilities**. Despite the low interest environment, banks had maintained profitability by increasing trading income and reducing costs. However, it noted that the

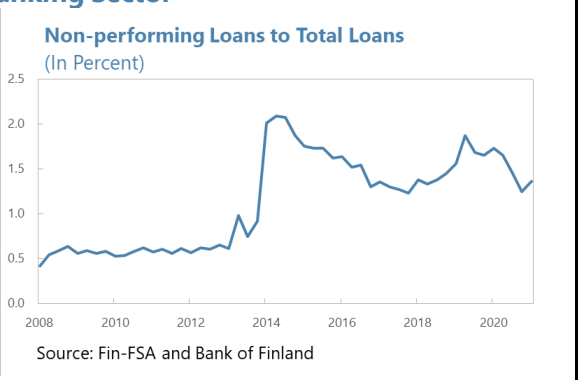
[2] For more details see IMF, Finland: Selected Issues, 2019.

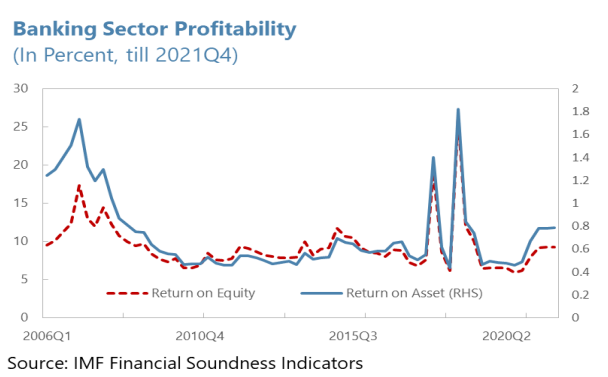
banking system remained reliant on external wholesale funding, with risks of systemic liquidity shortfalls. The FSAP highlighted the need to augment supervisory resources to address the challenges of the new regulatory environment introduced by the European Banking Union and strengthen enforcement; broaden the toolkit of macroprudential instruments; and expand regional coordination agreements.

7. **Capital adequacy of the banking sector is well above the EU average, but banks' funding models are sources of vulnerability.** The regulatory capital position of Finnish banks is strong at 21.2 percent (Figure 1), while the leverage ratio and the liquidity coverage ratio are 6.2 percent and 171 percent, respectively. Despite the pandemic, Finnish banks have gross interest margins of 47.6 percent, and remain profitable with return on assets and return on equity at 0.6 percent and 8.2 percent, respectively (Figure 1). However, they are reliant on wholesale funding (43 percent of total liabilities), making an increase in funding cost a major concern. Banks also retain significant derivatives exposure.

Figure 1. Finland: Banking Sector







C. Macrofinancial Challenges

8. **The authorities have had to manage the impact of the war in Ukraine.** The authorities continue to monitor closely the impact of geopolitical risks on the Finnish financial system. The current challenges in the European energy market have created additional liquidity needs for energy companies, including to meet margin calls. They have been provided with public liquidity guarantees and bridge financing to avoid risks spilling into the financial sector.

9. **The Finnish population has been rapidly ageing.** Prospects for growth in the medium term are not strong, given population ageing and low productivity trends. Combined with intermunicipal migration, there is the potential for declining bank profitability, and risks from the residential real estate market with a bifurcation in price increases between Helsinki and the capital region, and other parts of the country, which could affect smaller cooperative banks and amalgamations given their potential concentration in declining regions.

10. **Finland has weathered the COVID-19 pandemic well, with a mild recession relative to its European counterparts.** However, the impact of COVID-19 on the commercial real estate (CRE) sector remains uncertain at this stage as lifestyles and working patterns continue to evolve.

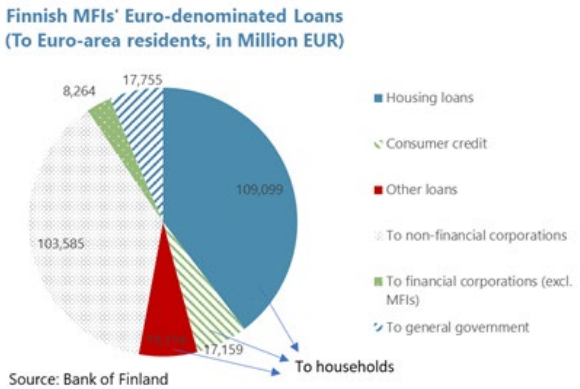
11. **Since the last FSAP, there have been major structural changes in the Finnish financial sector.** Nordea changed its domicile from Sweden to Finland in October 2018 seeking the common multinational regulatory framework provided by the euro area (see IMF Country Report No. 19/8). This move increased the size of banking sector assets from 250 to 350 percent of GDP and deepened Finland's exposure to other Nordic countries, particularly to Sweden. As a result, the FIN-FSA and FFSA have increased their staffing resources.

12. **Cyber risks to the financial sector are elevated, while climate risks are limited.** Ongoing threats from cyber criminals and state actors pose risks to the Finnish financial system, particularly in the context of the war in Ukraine. The Finnish Government passed legislation in July 2022 further expanding the crisis management responsibilities of the FFSA and BoF to establish a backup system to maintain continuity of customers' daily banking payments. Both transition and physical climate risks are low, with Finland among the lowest risk countries in climate change vulnerability indices.

SYSTEMIC RISK ASSESSMENT

A. Systemic Risks and Vulnerabilities

13. **High indebtedness makes households vulnerable to interest rate shocks despite low DSTI ratios (Figure 2).** As of August 2021, at least 93 percent of total loans to euro area households by Finnish banks were variable rate, making households vulnerable to increases in interest rates. However, rate collars purchased by many households generally mitigates the impact of higher interest rates on borrowers in the near term, as does the practice by most banks to stress DSTIs at origination.[3] An increasing share of household debt is in the form of housing company loans

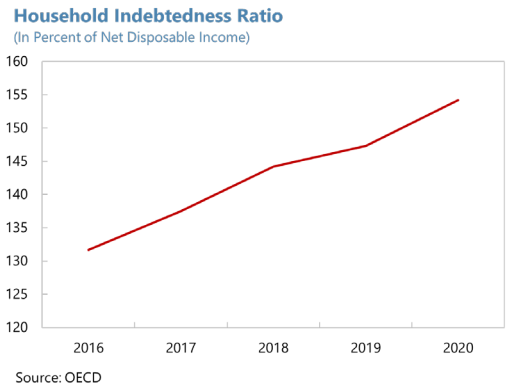


[3] Banks are recommended to stress test the DSTI of mortgage applications using an interest rate of 6 percent and banks seem to follow this recommendation.

(exposing them to mispriced risk; Article IV 2019). More than half of bank lending is to households as mortgages to households or to housing companies, and unsecured consumer lending.[4]

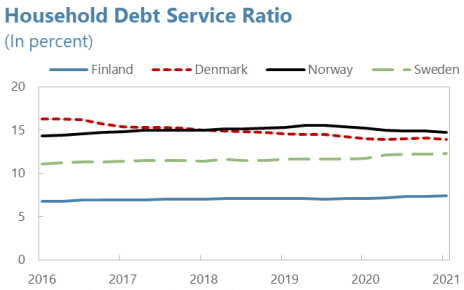
Figure 2. Finland: Household and Corporate Indebtedness

Household debt continued to go up during COVID-19…



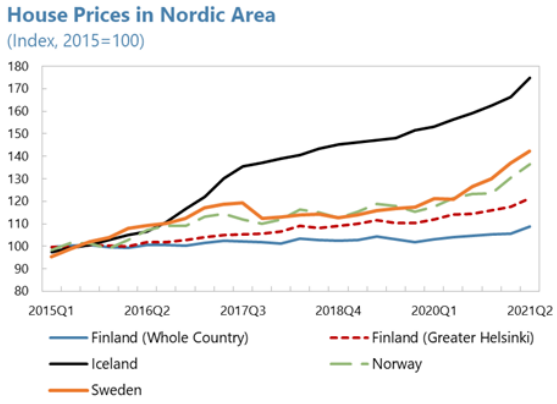
Source: OECD

…but debt service is low, given the low policy rate, high share of floating rate loans and moderate house prices.



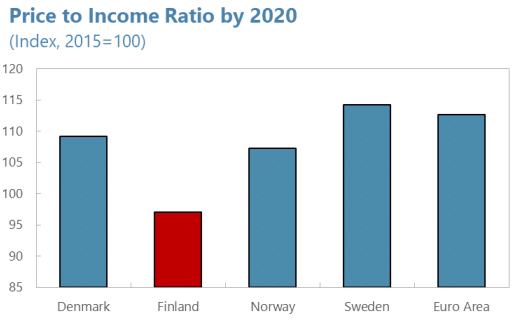
Source: Bank of International Settlements

House prices are rising in Greater Helsinki area…



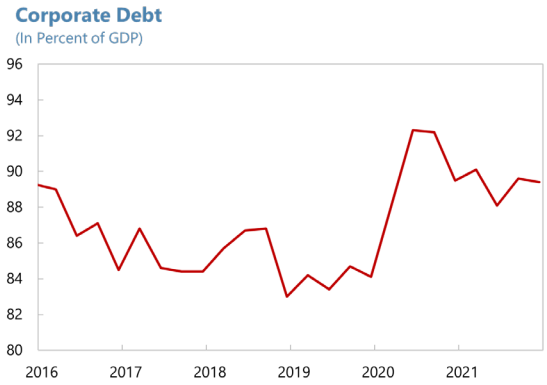
Source: Haver Analytics

…but houses are more affordable compared to 2015



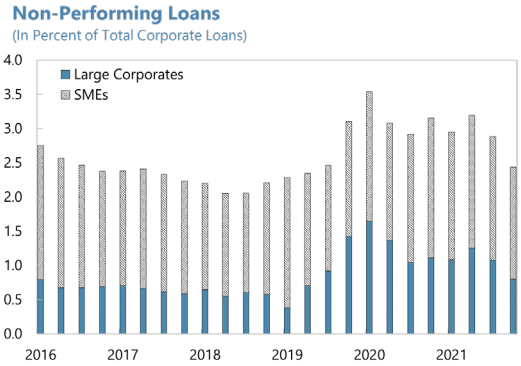
Source: OECD

While corporate debt has been rising…



Source: Bank of Finland

…NPLs have not yet increased after peaking at the start of the pandemic



Sources: Bank of Finland, Fin-FSA

[4] Loans to housing corporations are 40 percent of total non-financial corporate (NFC) debt but to some extent they represent household liabilities.

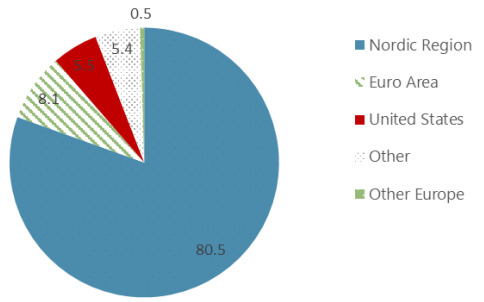
14. **The authorities have recognized the risks posed by high household indebtedness.** A working group reported on mitigating vulnerabilities in 2019. The Board of FIN-FSA subsequently recommended that housing loans be granted to applicants whose total loan-servicing costs are assessed to remain below 60 percent of their net income under stress conditions.

15. **The Finnish banking sector is highly interconnected with the wider Nordic/Baltic region.** This brings financial diversification, but also considerable contagion risk. Finnish banks' net foreign assets have gradually increased since the GFC and are 26.5 percent of GDP. The largest cross border exposures are to the Nordics and euro area. The banking sector is also exposed to indirect linkages from trade, with largest trade exposures to Germany, Sweden, the United States, and the Russian Federation (Figure 3).

Figure 3. Finland: Cross-Border Exposures and Sources of Funding

The largest cross-border claims are in the Nordic region and …

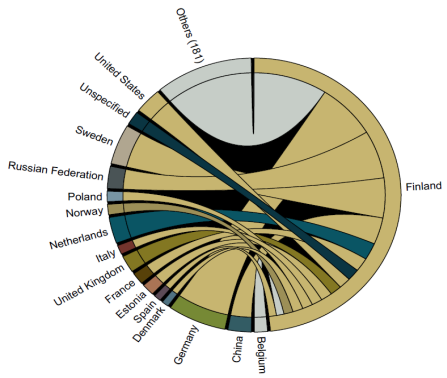
Finland: Cross-Border Bank Claims
(Percent of Total Cross-Border Bank Claims)



Source: BIS

… major trade partners are the euro area, Sweden, US and Russia.

Finland: Trade Exposures



Source: World Bank's WITS database

B. Banking Sector Resilience

16. **A stress test was undertaken to assess the resilience of the banking sector using a baseline and adverse macroeconomic scenario.** Seven banks were included in the exercise (95 percent of the banking system's total assets) and cross-border exposures at the bank level are explicitly considered. The baseline scenario is aligned with the October 2022 World Economic Outlook projections. The adverse scenario reflects the main risks in the risk assessment matrix (RAM, Appendix 2), with higher-than-expected inflation in the United States (U.S.) and advanced European economies, amid persistent geopolitical tensions and continued pandemic-related shortages. Sustained demand and increases in food and energy prices lead to Eurozone policy rates being increased to bring inflation back to target, resulting in a recession. Financial conditions tighten, confidence retracts, and risk premiums spike.

Figure 4. Finland: Macroeconomic Scenario[1]

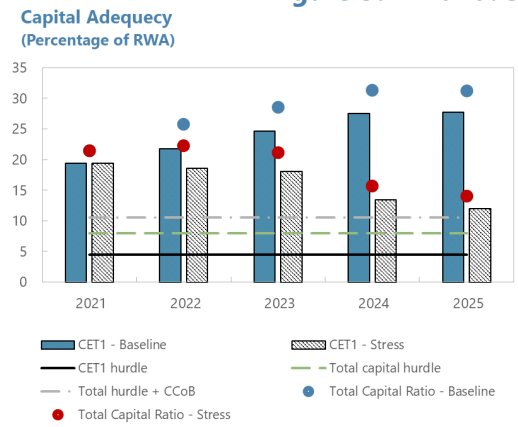
Source: IMF Global Mcrofinancial Model and WEO

[1] Year-average policy rate is the monetary policy rate in Finland (i.e., the ECB's refinancing rate). The risk-free rate is a 2-year sovereign risk-free bond yield.

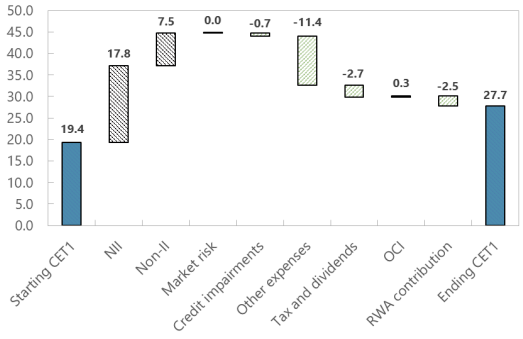
Solvency Analysis

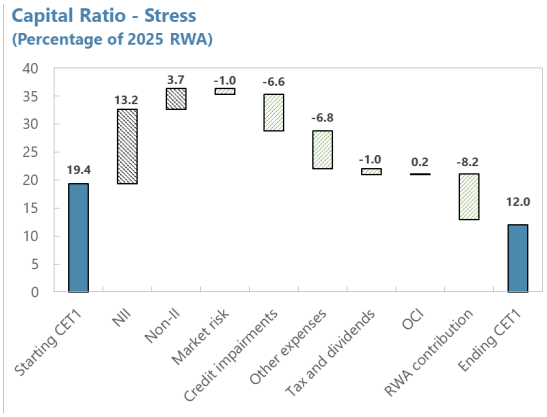
17. **The top-down exercise shows that Finnish banks are well-capitalized and appear resilient to severe macro-financial shocks (Figure 5).** In the adverse scenario, the aggregate CET1 capital ratio declines significantly by 7.4 percentage points to 12 percent at end-2025. While tighter monetary policy limits access to funding for households and corporates and results in higher non-performing loans, causing larger credit impairments, higher interest rates result in larger net interest margins, counterbalancing the impact on profitability.

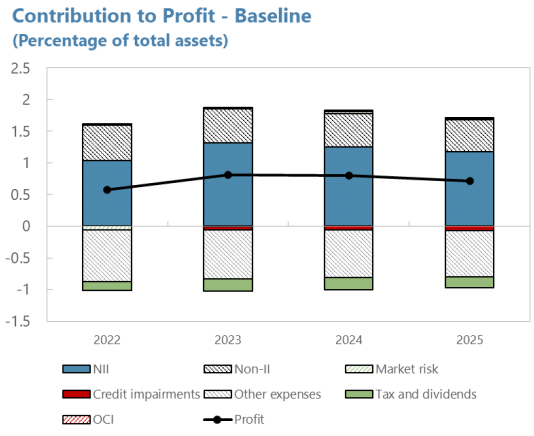
Figure 5. Finland: Solvency Stress Test Results[1, 2]

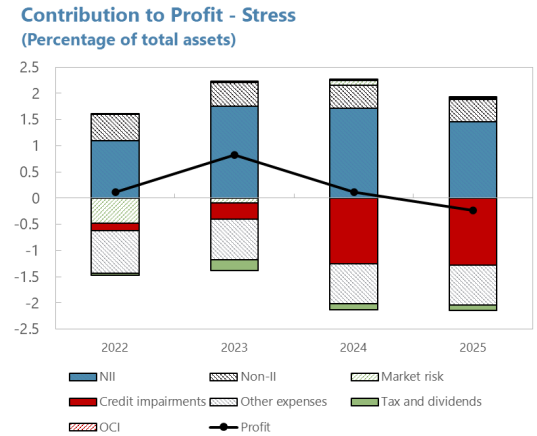


- ***Capital adequacy:*** *All banks have been highly capitalized in the start of the stress test. CET1 sufficiently covers the minimum capital requirements, and it continues being sufficient during both scenarios. In the adverse scenario, capital decreases until 2024 and starts recovering in 2025.*
- ***Capital ratio:*** *During the stress scenario, the most important factor that contributes to the overall decrease of the capital is credit impairments and RWAs.*
- ***Contribution to profit:*** *The main factor that weakens profitability during the stress scenario is the increase in credit impairments. This is counterbalanced by the increase in the NII.*









Source: IMF staff calculations

[1] CET1: common equity tier 1 ratio, CR: capital ratio, CCoB: capital conservation buffer, OCI: other comprehensive income.

[2] Cross border credit losses have been estimated using the baseline and adverse scenarios of the respective countries.

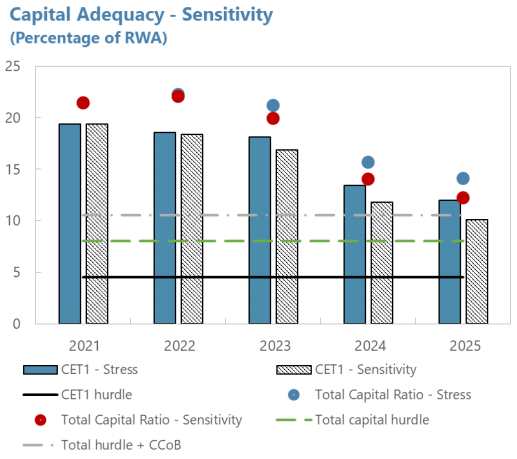
18. **Overall, capitalization is weakened in the adverse scenario due to deteriorating credit exposures.** This drives an increase in risk-weighted assets (RWA), but the higher policy rate compensates through high net interest margins (NIM) despite reduced demand for credit. In the adverse scenario, the aggregate CET1 capital ratio declines by 7.4 percentage points to 12 percent at end-2025.

19. **Credit risk significantly increases in the last two years of the adverse scenario and is the main driver of the adverse results.** The main drivers of credit risk for both domestic and cross-border consumer and SME lending are increased unemployment, and a fall in property prices and investment. For wholesale credit, both domestic and cross-border, the main drivers are lower GDP growth, increases in the interbank rate, and the higher output gap. The highest rate of impairments is observed in unsecured household lending, followed by SME lending, secured household lending, and large corporate lending, respectively. Market risk losses are high during the first year. There is considerable heterogeneity in the drivers of capital depletion across banks.

20. **Net interest margins increase (NIM) because of higher pass-through rates on lending than on deposits.**[5] The sharp increase in the policy rate in the adverse scenario allows banks to offset valuation losses and impairments through high net interest margins (NIM).

21. **A lower path for interest rates in the adverse scenario would have worsened bank capital.** A sensitivity analysis of interest rates (Figure 6) shows how the macroeconomic conditions in the adverse scenario transmit to bank capital and profitability. In the solvency stress test, Net Interest Income (NII) increases with interest rates. However, if interest rates in the adverse scenario were to remain as in the baseline, total capital adequacy ratios would drop to a low of 10.1 percent, as NII increase at a lower level than in the adverse scenario. CET1 ratios remain sufficient on average, but two banks would be unable to meet their minimum capital requirements in 2025.

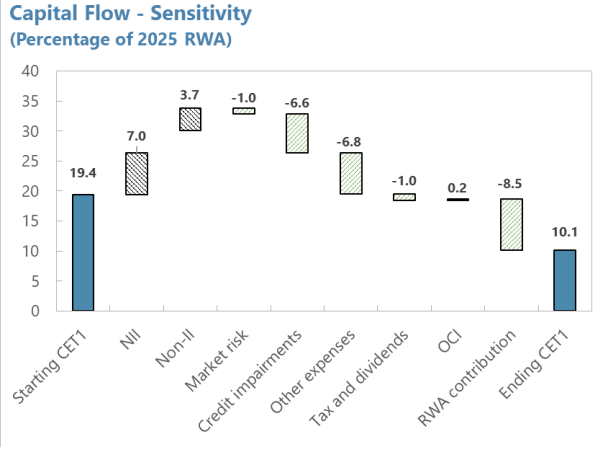
Figure 6. Finland: Sensitivity Analysis Results

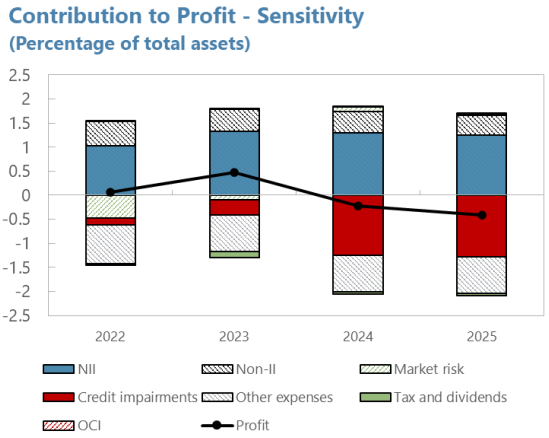


- ***Capital adequacy:*** *Banks record lower capital rations in comparison with the stress test, and two of them cannot meet the minimum capital requirements.*
- ***Contribution to profit:*** *Profitability is affected by the lower NIM, but most banks continue to record profits.*

[5] The pass-through rates from the effective interest rates are a) retail lending: 50.7 percent, b) corporate lending: 65.9 percent, c) interbank lending: 46.8 percent, d) term deposits: 35 percent, and e) overnight deposits: 29.4. The pass-through rate from the risk-free rate to effective interest rate of debt securities in the banking book is 78.2 percent, and in the effective interest rate of debt liabilities is 60.6 and 49.4 for unsecured and secured debt, respectively.

Figure 6. Finland: Sensitivity Analysis Results (Concluded)

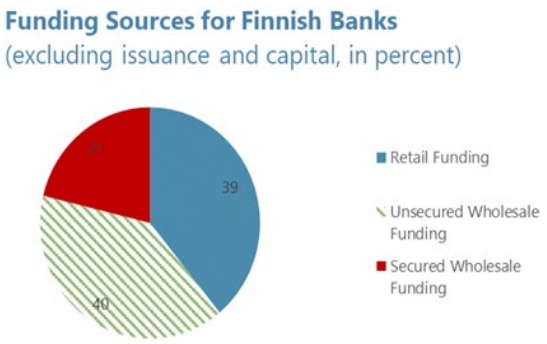




Source: IMF staff calculations

Liquidity Analysis

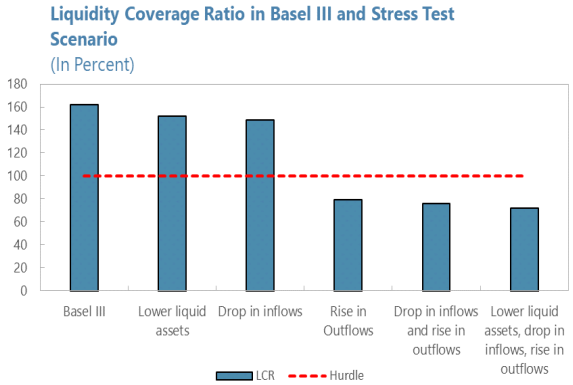
22. **Three top-down exercises were undertaken using regulatory data to assess liquidity risks.** These were: an LCR stress test; a cashflow-based analysis; and a qualitative analysis underlining the banking funding position (NSFR) in euros. The LCR exercise measures banks' ability to cover 30-day liquidity needs (weighted net outflow) with their high-quality liquid assets; the cashflow analysis considers different maturities of cash inflows and cash outflows; the NSFR test evaluates longer-term funding capability of banks.



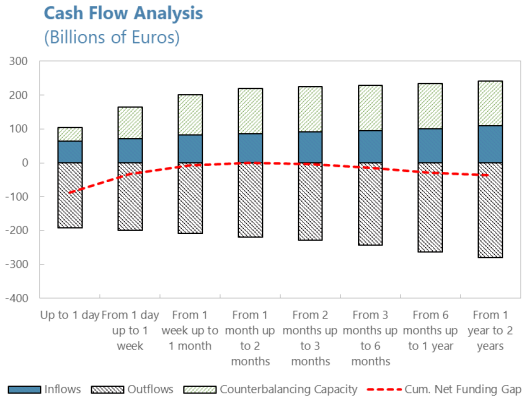
23. **The liquidity analysis reveals significant vulnerabilities due to the reliance on short-term wholesale funding (Figure 7).** Under the most severe liquidity stress scenarios, banks' high quality liquid assets (HQLA) prove to be insufficient, because the LCR falls well below the 100 percent threshold in the scenario with a rise in outflows. Other more adverse scenarios show even larger gaps. The qualitative NSFR test reveals the heavy reliance of banks on wholesale funding: by mid-2022, unsecured wholesale funding is 40 percent of total available funding, mostly sight deposits of corporate and financial institutions. The large share of short-term wholesale funding amplifies cash outflows at all maturity buckets, generating a large negative cumulative net funding gap.

Figure 7. Finland: Liquidity Analysis Results

Banks liquid assets are insufficient in some more severe liquidity stress scenarios.



While there is a large net funding gap created by a reliance on short-term wholesale funding.



Source: IMF staff calculations and COREP.

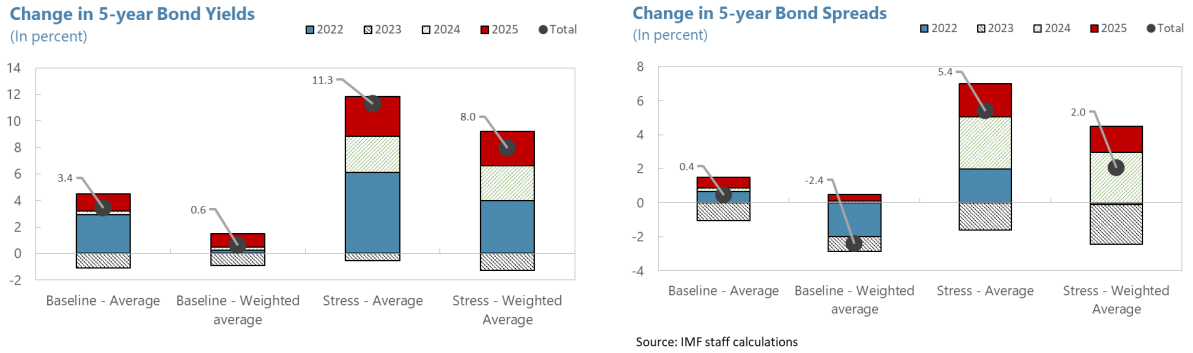
24. **The analyses suggest the need for tighter liquidity regulation.** Ideally, banks should adjust their funding structure but, because of the size of the financial system relative to the size of the economy, it is difficult to decrease the proportion of wholesale funding from the total funding availability in the near term. The authorities should direct Finnish banks to enhance liquidity buffers to cover a predetermined threshold of wholesale funding outflows over a five-day horizon, and restructure their wholesale funding over time, aiming to increase the proportion of longer-term and demand deposits, to the extent that is feasible. One step in this direction is the targets for minimum requirement of own funds and eligible liabilities (MREL) set by resolution authorities as only debt with maturity greater than one year can be used to meet the requirement. Furthermore, the authorities are recommended to run more frequent liquidity stress test exercises and should require banks to hold a higher stock of HQLA to withstand the stress test results.

Access to Funding Analysis

25. **A second-round effect stress test was undertaken to measure the impact of the solvency stress test results on bank access to wholesale funding.** The analysis estimated how banks' financial position, in combination with the macro-financial environment, affects their bond yields. It provides intuition on the interaction between solvency and liquidity, measuring how deterioration in banking solvency affects access to market funding.

26. **The analysis shows that Finnish banks may face constraints to wholesale funding access during a stress period, when banking solvency decreases, and risk-free rates increase.** 5-year bank bond yields at end-2021 were 0.5 percent and rose to 2.8 percent in Q2 2022. Over the stress scenario, there is a 11.3 percentage point increase in the five-year bond yield on average (Figure 8), of which a 5.4-percentage point increase is due to credit spreads, mainly from the last two years of the stress scenario. The analysis shows that main driver of the increase of the spreads is the deterioration of asset quality and increase in credit provisions. The bank-specific yield changes depend on their stress test performance.

Figure 8. Finland: Bond Yields and Spreads[1,2]



Source: IMF staff calculations

[1] The analysis focusses on marginal funding cost only (i.e., the cost of a bank issuing new debt). These yields do not affect banks' NIM as they do not affect interest payable on existing debt. The average four-year change is the average estimated change in 5-year bond yields and spreads of every bank in the exercise that issues bonds. The weighted average four-year change is the overall change in the banking 5-year bond yields and spreads weighted by the total value of bonds issued from each bank in December 2021.

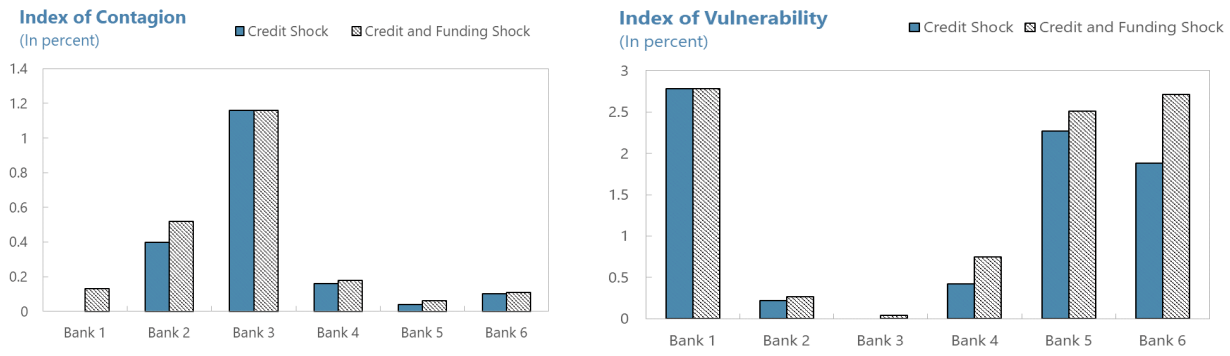
[2] Bank funding cost depends on profitability, asset quality, and liquidity. The semi-elasticities are -3.47, 0.95 and -0.004.

27. **Finnish banks are very well capitalized and have large loss absorption capacity under stress.** However, the analysis shows that a reduction in the quality of their portfolios may reduce access to funding (Figure 8)**.** The results suggest the need to closely monitor banks' banking book quality, particularly for banks with a higher credit risk appetite. Smaller in-year stress test exercises could be introduced, focused on specific risks (e.g., credit risk, interest rate risk), with multiple scenarios and sensitivity analyses. These tests could highlight the specific impact of risks on bank funding access, which may not be observable in solvency stress testing due to banks' high level of capitalization.

Banking Sector Interconnectedness

28. **Domestic interbank analysis reveals small domestic interbank contagion risks.** Interbank positions are small compared to banks' capitalization. The results show no single failure of a domestic bank would trigger the failure of another bank in either scenario (no "cascade effect"). No bank is also undercapitalized relative to its regulatory minimum after a shock to one/several of its interbank exposures. All have low vulnerability to spillovers, despite some variability (Figure 9). The index of contagion (average percentage of loss of other banks due to the failure of a given bank) is also low.

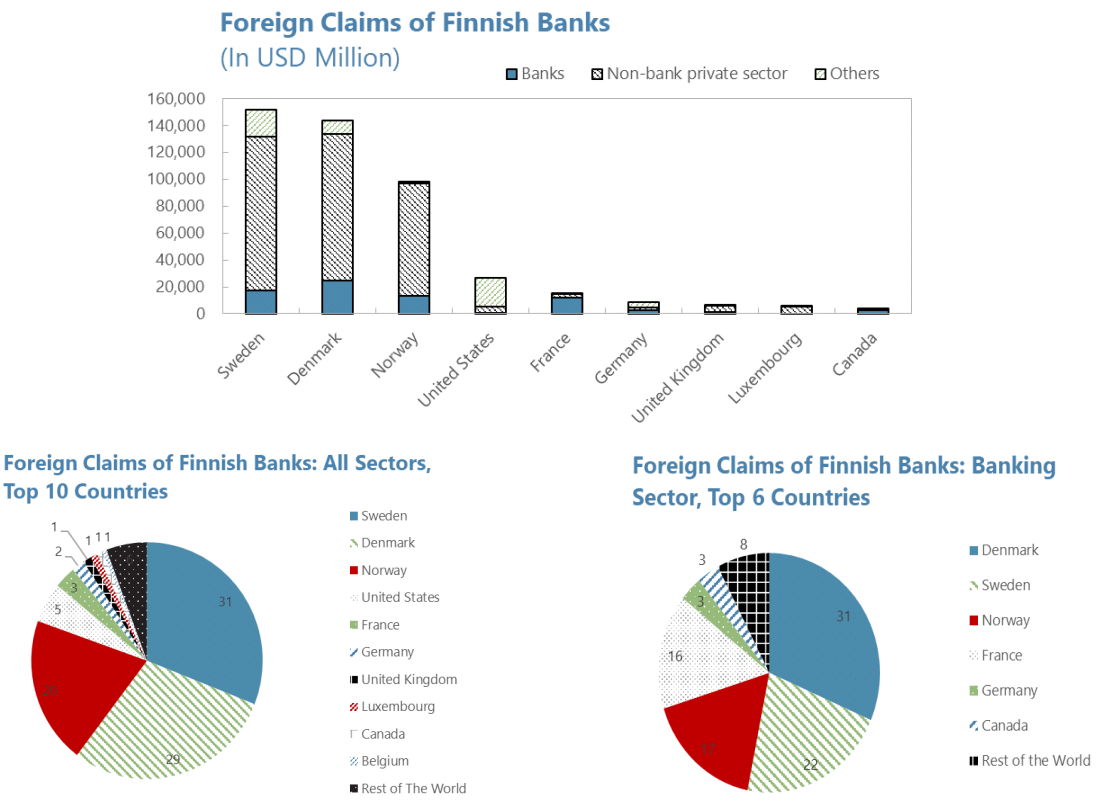
Figure 9. Finland: Domestic Interbank Network and Contagion Analysis Results



Source: IMF staff calculations

29. **Cross-border analysis reveals strong linkages with Nordic countries (Figure 10).** 80 percent of cross-border exposures are to Denmark, Norway, and Sweden, and typically involve intragroup exposure. Among Finnish banks, Nordea holds 74 percent of its assets in these three countries. There are also significant exposures outside the Nordic region, particularly with the United Kingdom (derivatives at London Clearing House), Germany (debt securities, derivatives), and the United States (Federal Reserve).

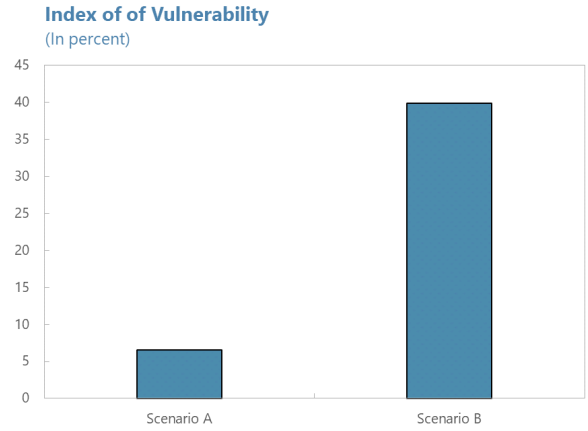
Figure 10. Finland: Claims of Finnish Banks



Source: BIS Consolidated Banking Statistics Q1 2022

30. **An economy-wide default in any Scandinavian country would imply a total loss of Finnish banks' capital.** While the Finnish banking sector is most vulnerable to Sweden, the overall index of vulnerability through interbank exposures is very low at 6.6 percent (Figure 11, Scenario A). A default across all creditors in any Scandinavian country (Figure 11, Scenario B), would have a greater impact, implying a total loss of Finnish banks' capital. This is as expected, as nonbank claims in Scandinavian countries constitute most of the financial system's cross-border exposures.

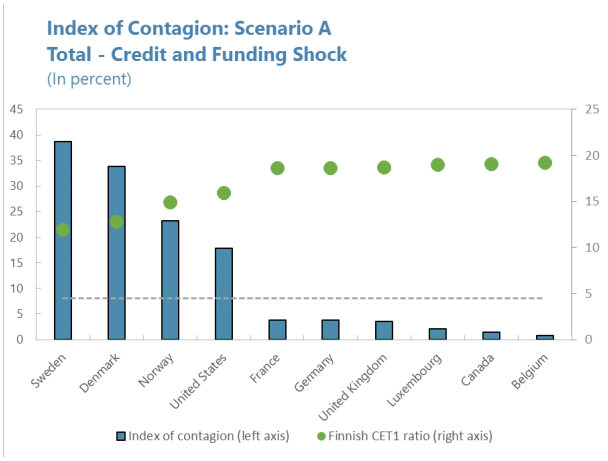
Figure 11. Finland: Cross-Border Contagion Analysis Results[1]

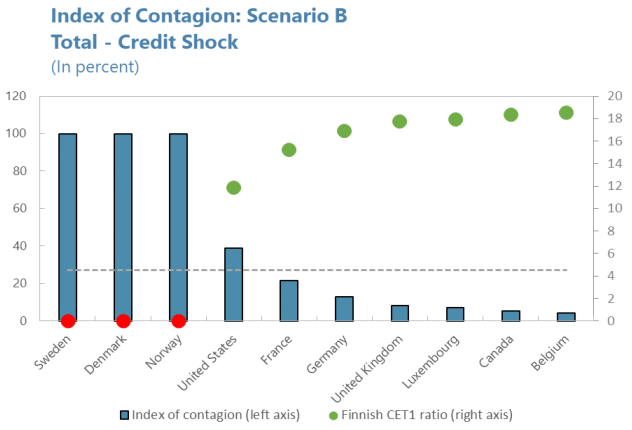


- ***Index of vulnerability:*** *The overall vulnerability of the Finnish banking sector against a systemic cross-border shock in another foreign banking sector (Scenario A) is low (6.6 percent). Although, the vulnerability against and overall systemic stress (Scenario B) is significantly greater (39.8 percent)*
- ***Index of contagion:*** *The two charts show the ten countries Finland is most vulnerable in each cross-border contagion scenario. Sweden, Denmark, and Norway are the most contagious countries in both scenarios. Although, the magnitude of the impact in Scenario B is significantly greater than Scenario A.*

Scenario A: Banks exposures to foreign banks only, considering both credit and funding shocks.

Scenario B: The impact of a credit shock on the total exposure of the banking sector, including claims to banks, governments, and the nonfinancial sector





Source: IMF staff calculations

[1] The index of vulnerability shows the probability of a bank/system to default due to a systemic event were the systemic event to be caused by the default of any of its peers, included in the analysis. The index of contagion measures how probable it is that a specific bank causes a systemic event if it defaults.

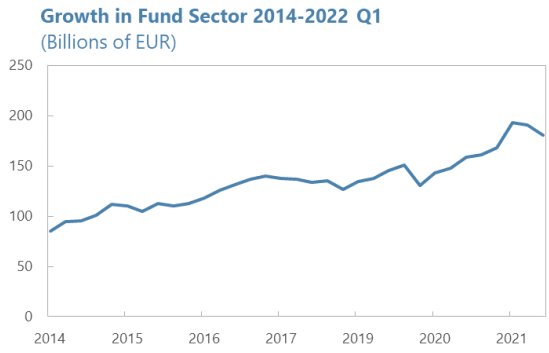
31. **The authorities should lead a Nordic-wide stress test, as recommended in the 2016 FSAP, because of the degree of financial interconnectedness in the Nordic region**. The authorities should consider a top-down exercise covering interlinkages and spillovers, liquidity-solvency interactions, and, over time, expand coverage to both banks and NBFIs. Specifically, the exercise should focus on cross-border interconnectedness analysis at an institutional level, instead of system level, as in the FSAP. It will provide a better mapping of cross border exposures, which will

crystalize the vulnerabilities of the financial systems in the Nordic region. Such an exercise should complement, and not replicate, existing euro area stress tests undertaken by the European authorities, coordinating as appropriate.

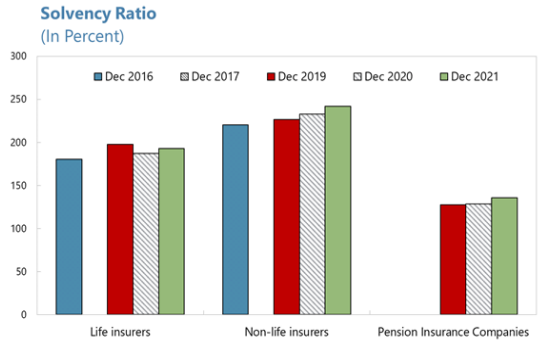
C. Nonbank Financial Institutions

32. **The NBFI sector faced fewer challenges during the COVID-19 pandemic and the war in Ukraine than during the GFC**. This is partly attributed to improved risk management practices, lower customer withdrawals, and increased demand for savings products during the pandemic. It has also been helped by the recovery in financial markets after Q1 2020. This significantly boosted the capital of Insurers and PICs ahead of the negative shocks in H1 2022 (Figure 12).[6]

Figure 12. Finland: NBFI Assets and Solvency



Source: FIN-FSA



Source: FIN-FSA

33. **Nevertheless, the COVID-19 pandemic caused fund suspensions, as did the war in Ukraine.** Fund management companies were able to lead on temporary suspensions which are now permitted in regulation (a positive development relative to the GFC and 9/11, when FIN-FSA needed to order or approve suspensions). However, this led to some managers to gate funds when others did not.

34. **The insurance sector has strong solvency overall.** COVID-19 reduced claims in the non-life sector, while strong asset returns in 2021 helped on the asset side, and rising interest rates in 2022 reduced insurers' liabilities even whilst asset markets fell. But while levels are healthy, insurers remain vulnerable to a sharp change in interest rates, further falls in equity markets, or a local real estate correction (which some market participants deem likely).

35. **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**. Portfolio diversification may appear to mitigate risks, but if potential linkages are not traced through a portfolio, standard modelling will not pick them up. For example, an NBFI could have indirect exposure to energy companies, banks with major loans to energy companies, construction companies focused on the

[6] The four PICs are ELO, Ilmarinen, Varma and Veritas.

energy sector, or energy-intensive firms.

36. **FIN-FSA's overall macroprudential strategy includes the NBFI sector and the public would benefit from more published material on these issues.** There is insightful internal analysis on key asset markets and the roles of different Finnish and external asset owners, which should be published proactively.

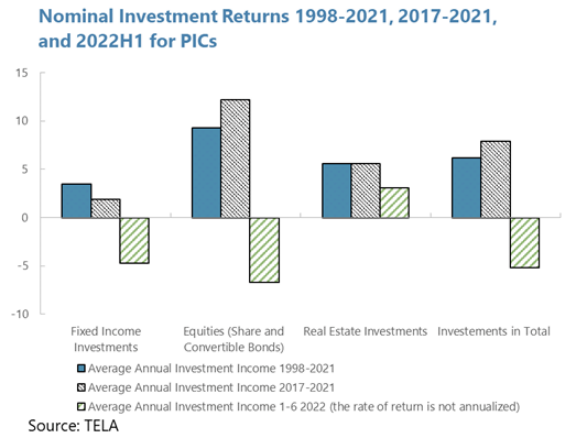
37. **FIN-FSA could benefit from additional resources and expertise for NBFI supervision.** The pace of new regulation for the sector, driven primarily by the EU, can create significant costs and uncertainty. Also, FIN-FSA should publish a detailed annual supervisory plan to help the industry prepare for the large number of regulatory changes and EU Common Supervisory Actions.

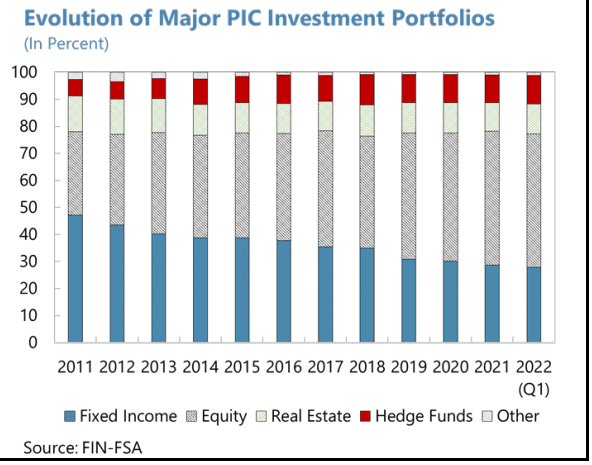
Pension Insurance Companies

38. **The PICs are part of the mandatory social security system, with a role to invest assets to partly fund the system**. As part of social security, PICs are not subject to the EU Occupational Pension Directive (IORPII), or the EU Insurance Directive (Solvency II). This gives the authorities significant domestic regulatory freedom.

39. **PICs have performed well despite the shocks from the COVID-19 pandemic and war in Ukraine.** Over the last 20 years, the sector has generated decent investment returns (Figure 13), with geographic and asset diversification to higher yielding illiquid asset classes like real estate, private equity, and higher quality hedge funds, consistent with the profile of long-term PIC liabilities. However, investment performance is lower than regional comparators, and is lower between 1998-2021 (and particularly 1998–2017) than the local government fund KEVA, which can invest through downturns without any pressure from short-term solvency rules.

Figure 13. Finland: PIC Returns and Portfolio Composition





40. **Analysis shows a history of procyclical and herding behavior in the portfolio allocation of the PICs due to the impact of domestic solvency regulations on investment behavior.** While public pension funds have been able to invest countercyclically, PICs have previously displayed pro-cyclical investment behavior because of short-term solvency requirements. Major PICs have acquired

or sold listed equity in a highly correlated manner, and the correlation between them has surpassed 80 percent. As investment restrictions have been loosened (in 2014 and 2017), while retaining the quarterly and annual solvency focus, the PIC investment allocation has become closer to KEVA, with over 90 percent correlation since 2015. Overall, reforms in 2017 appear to have mitigated procyclicality; since 2010, cyclicality is estimated to have ranged between -0.01 to -0.15 for PICs.[7]

41. **The post-2017 solvency regulations remain complex, costly in supervisory and PIC time and do not provide a full anchor on long-term performance.** The October 2022 long-term pension projections by the Finnish Center for Pensions (ETK) highlight how real returns from PICs are increasingly important to the stability of the pension system. The PIC solvency regime should focus on stress testing governance, investment strategies, and long-term risk.[8]

42. **The ability of employers to borrow past pension contributions from PICs should be limited or removed.** This creates liquidity risk, even if PICs can technically refuse requests. While used during the GFC, it has not been utilized recently and should be removed. A liquidity regulation to ensure stability during extreme events could complement longer-term solvency rules.

43. **The PICs are jointly liable for all their pension payments and the authorities should run crisis simulation exercises of a large PIC failure.** While smaller PICs have been amalgamated, a '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 operational implications.

44. **Like for the rest of the NBFI sector, the FIN-FSA has limited resources for PIC supervision.** The PICs need regular on-site and off-site supervision of governance, investments, and operations given their size. There are opportunities to reallocate resources, if a new solvency regime results in lower frequency solvency calculations, or by taking resources away from small non-PIC Pension Funds.

FINANCIAL SECTOR OVERSIGHT

45. **Financial sector oversight requires more resources.** Increased resources, especially for the FIN-FSA, could be achieved through the reallocation of resources from other areas of work, efficiency gains (e.g., suptech), or through a larger financial envelope for financial oversight via increased fees and/or increased public financing.

A. Bank Oversight

46. **For the banking sector, the authorities have made progress on the implementation of the recommendations of the 2016 BCP assessment.** Loan-level data collection has been improved by the introduction of a regulatory report on new household mortgage loans in 2016. The legal process to establish the Positive Credit Register that will cover data on all personal loans is about to

[7] Cyclicality is calculated as the correlation between net acquisition of listed shares with their valuation changes, both expressed as share of stock of shares at the end of previous quarter.

[8] The long run fiscal sustainability of the Finnish Pension system is beyond the scope of this FSAP, which is focused on financial stability.

be completed (Spring 2024).[9]

47. **There remain important outstanding issues, including strengthening operational independence of the FIN-FSA and the legal protection of its staff.** Third parties may take legal action directly against FIN-FSA officials and staff. In this case, there is no dedicated provision to protect FIN-FSA officials and staff against the costs of defending their actions and/or omissions made while discharging their duties in good faith.

48. **The independence of the FIN-FSA should be further enhanced:**

- For banking oversight, the Board of the FIN-FSA should not include the Ministry of Finance (MoF) or the Ministry of Social Affairs and Health (MoSAH). As stated in previous FSAPs, including officials from MoF or the MoSAH on the board is not consistent with international standards, exposing the authorities to charges of lack of independence and conflicts of interest between the FIN-FSA's mandate and the agenda of Ministries. The independence of the FIN-FSA should be further enhanced by requiring board members with more diverse backgrounds and experience.

- The FIN-FSA is led by a Director General (DG) whose term of office is five years with an opportunity to be appointed again. The Parliamentary Council appoints and dismisses the Director General, upon proposal by the Board. No specific justification for removal is required, although there has never been a situation where the Parliamentary Council has removed the DG. There should be a statement of the reasons for the dismissal of the Director General, and the ineligibility criteria for the Director General should be defined clearly in law, and publicly disclosed if a dismissal occurs.

49. **The availability of resources for banking supervision is a challenge for the FIN-FSA.** Under the SSM arrangements, although the ECB directly supervises SIs, a significant share of supervisory resources come from the FIN-FSA.[10] The SSM LSI methodology, derived from the SI methodology, is significantly more comprehensive that the FIN-FSA's pre-SSM approach. Furthermore, new risks are emerging that require new skills to meet challenges of cyber resilience, opportunities from fintech (see Box 1), increasing sophistication of criminal activity (money laundering and terrorist financing, ML/TF), and climate and energy-related risks on banking. However, the FIN-FSA's activities are mainly financed by supervision fees: there is a risk (from 2024) that fees calculated with the current schedule may not cover expenses. It is important to increase resources to recruit and retain quality staff across a full range of skills and experience in both traditional and emerging risks.

50. **The supervisory approach and tools of the FIN-FSA have improved, but there is room**

[9] The register aims to give a comprehensive picture of a person's indebtedness and will contain virtually all personal loans that carry interest (law § 6, second bullet): HE 22/2022 vp (eduskunta.fi).

[10] The 2018 Euro Area FSAP stated that around ¼ of supervision resources come from the ECB and rest from the NCAs.

for further improvement. The authorities rolled-out the ECB/SSM approach to the Supervisory Review and Evaluation Program (SREP) to all LSIs in 2019–20. FIN-FSA's SREP assessments are comprehensive and reflect a thorough analysis of LSI's risk profiles and capital requirements. However, further strengthening is recommended by: (i) increasing the number and scope of on-site inspections (especially on-site inspections on corporate governance and risk management frameworks); (ii) meeting banks' board of directors and bilaterally with independent board members and external auditors at least once a year for high-impact LSIs; and (iii) including an assessment regarding board and senior management competence, collective suitability of the boards and overall group structure and risks stemming from related parties in SREP reports. Furthermore, amalgamation institutions should be assessed as a group from a supervisory perspective.[11]

51. **The corporate governance framework for credit institutions could be further strengthened.** There were some important enhancements in the governance framework with Law 233/2021 that amends the Act on Credit Institutions (ACI). However, the board of directors of all banks should include enough independent members meeting clearly determined independency criteria, especially for central institutions of amalgamations. The FIN-FSA also needs to complete the necessary work for supervisory boards to be covered by the regulatory and supervisory framework: central institutions' supervisory boards of amalgamations are given some of the tasks of board of directors, but members of the supervisory boards have not yet been subject to fit and proper assessments, nor has the FIN-FSA assessed the collective suitability of supervisory boards.[12,13]

52. **The supervisory approach could further be improved by conducting analysis on banks' IFRS-9 implementation.** In particular, the analysis should focus on the staging of exposures and functioning of expected credit loss models. It would be useful to have a regular dialogue with credit institutions, bilateral meetings with credit institutions' external auditors, benchmarking and peer review analysis, and targeted on-site inspections.

Fintech in Finland

53. **Finland is the second most digitalized of EU Member States.[14]** There are around 200 fintech companies with 1.2 billion EUR total revenues, mainly in fintech platform financing, payments, investments, and financial software. The biggest are in payments, and technology and solutions for large banks. Given their overall footprint, prudential oversight is adequate (Box 1).

54. **It is important that the BoF and FIN-FSA ensure comprehensive data collection on lending by platforms/institutions that are not supervised by the FIN-FSA.** Household consumer

[11] See the Technical Note on Banking Regulation and Supervision for the definition of an amalgamation of deposit banks as set out in the Banking Supervision Deposit Bank Amalgamation Act (599/2010).

[12] According to the Co-operative Act, a co-operative shall have a board of directors. It may also have a Managing Director and a Supervisory Board

[13] The FIN-FSA plans to complete these assessments by 2022 year-end.

[14] European Commission Digital Economy and Society Index, 2021.

credit,[15] at end-Q1 2022, is estimated to be around 24 billion EUR, 40 percent of which lent by digital banks (local and cross-border) and lending platforms (peer to peer consumer lending platforms and pay-day lenders). However, credit to households via digital platforms has declined because of the 20 percent interest rate ceiling on consumer loans introduced in 2019. This has led lenders to redesign their business models and apply for banking licenses or focus on corporate lending.

Box 1. Fintech Landscape in Finland

Digitalization is high in Finland, with all residents over 15 years old having an account at a financial institution, and 65 percent holding a credit card.[1] Banks are increasingly using digital channels to provide financial services to customers. While physical identification is required to first generate a digital ID, it can then be used for many purposes. Credit institutions' cooperation with fintech is mainly in outsourcing or subcontracting payment services.

A survey on financial institutions from 2021 showed that banking and pensions are most advanced in the use of new technologies. Supervised entities are furthest in the use of big data and analytics, followed by regtech and cloud services. New technology is most used in support functions. In banking, large banks use regtech for risk management and regulatory reporting, with automated credit decisions taken mainly for uncollateralized consumer loans.

There are 15 digital-only banks in Finland, one domestic, operating under a banking license. Their market share is only 0.6 percent of total banking assets and 1.3 percent in household lending. Banks from other Nordic countries are active in household lending in Finland through digital platforms, accounting for 3-5 billion EUR of consumer loans. They are monitored with ad-hoc data collection from public interim reports and data sharing with other Nordic central banks.

There are around 50 non-bank digital lenders (peer-to-peer lenders and pay-day lenders) in Finland. Their market share is estimated at about 2.5 percent by the BoF. While they are registered with the Regional State Administrative Agency for Southern Finland, there is a law in progress to give the FIN-FSA supervision powers over them.

There are 19 authorized payment institutions, including three e-money institutions. Card schemes dominate retail payment volumes, with mobile payments on the rise. The FIN-FSA has a tool to evaluate the risk level of specific institutions. Supervision is risk-based, and resources are mainly put in AML/CFT related issues. Few virtual-currency service providers subject to registration with the FIN-FSA operate in the country. Equity and business-to-business loan crowdfunding activities are required to be registered (and from November 2022 subject to authorization) and there are 10 service providers. Mortgage credit intermediary services is another area where registration at the FIN-FSA is required.

[1] World Bank, The Global Findex Database, 2021.

B. Macroprudential Policy Framework

55. **Since the 2016 FSAP, the authorities have made steady progress in improving the macroprudential policy framework.** The macroprudential policy toolkit has been expanded, with an SyRB and minimum risk weight for mortgage loans, and the development of the positive credit register. These data are useful for the analysis of household indebtedness and calibration of

[15] Excluding mortgages.

macroprudential tools. Cooperation with other Nordic countries has been expanded with an updated Memorandum of Understanding (MoU) to promote financial stability, including common procedures for information sharing and coordination.

Institutional Framework

56. **The institutional framework for macroprudential policy in Finland, formalized in 2014, is in line with IMF guidance for effective macroprudential policymaking.** The FIN-FSA is the designated macroprudential authority, and its Board has decision-making powers, including to issue, amend, revoke, and implement certain macroprudential policy instruments. The BoF has an important role in providing analysis to support macroprudential policy, and the Deputy Governor of the BoF is Chair of the FIN-FSA Board. The authorities have recently revised the macroprudential strategy by stating the possibility of releasing macroprudential buffers in times of stress to support bank lending, which is commendable and timely. The authorities use various tools to ensure accountability and transparency through communication of macroprudential policy.

57. **Strengthening the willingness and the ability to act in the macroprudential policy framework requires additional legislation.** Defining a clear mandate of macroprudential policy for the FIN-FSA could foster willingness to act by enhancing the legitimacy of its policy actions. For example, the objective of the FIN-FSA could be explicitly stated as "maintaining the stability of the financial system as a whole" in Chapter 1, Article 1 of the Act on the FIN-FSA. In addition, the authorities could formalize the practice that the FIN-FSA Board is chaired by a representative from the BoF to harness the central bank's expertise in systemic risk identification and shield macroprudential policymaking from potential political interference.

58. **Consideration should be given to providing the Board of the FIN-FSA with power to make regulations to achieve macroprudential objectives**. The hard power of the Board of the FIN-FSA is restricted to specific instruments outlined in the ACI and CRR. If this is infeasible, the Board should be given semi-hard powers to issue recommendations on a "comply or explain" basis. This would strengthen the ability to act, ensuring that the Board has various policy options to contain systemic risks, as the legislative process can take considerable time to create new tools.

59. **Changing the composition of the Board of FIN-FSA to enhance its independence as a banking supervisor would require a change in governance of macroprudential policy.** The current governance structure for macroprudential policy has worked well, and in line with best practice has a key role for the BoF, as well as for the MoF given the need for legislative action to change the macroprudential toolkit or the regulatory perimeter.[16] However, removing Board officials appointed by MoF and MoSAH, to avoid the appearance of lack of independence (¶48), would conflict with its role as macroprudential policy authority. To resolve this conflict, options include: (i) separate Board committees for macroprudential and microprudential oversight; or (ii) a financial stability council outside the FIN-FSA but with same composition and macroprudential powers as the current Board, with FIN-FSA as the secretariat.

[16] See IMF (2013), "Key Aspects of Macroprudential Policy," IMF Policy Paper.

Systemic Risk Monitoring

60. **Systemic risk monitoring for the household sector, the primary source of financial vulnerabilities, is effective and timely.** The FIN-FSA and BoF conduct systemic risk monitoring by analyzing a broad set of indicators and using multiple quantitative methods, conducting institution-level analysis with bilateral exposures data, and through stress test exercises. They jointly prepare vulnerability analyses and preliminary macroprudential policy proposals for the FIN-FSA Board. Policy recommendations and staff level discussions are summarized in a bi-annual macroprudential report, and the Bank of Finland Bulletin summarizes financial stability issues once a year.

61. **The rapid increase of residential housing loans is of systemic concern.** While house prices have not increased in Finland as much as in other Nordic countries, household debt reached its highest level in 2021 (Figure 14), and the average maturity of loans has also risen. With 95 percent of housing loans linked to variable rates (and only 28 percent hedged to fixed rates through the use of interest rate collars), a rise in interest rates could jeopardize household debt repayments.

62. **Systemic risk monitoring should be enhanced through more granular data analysis and by addressing data gaps**. The positive credit register will provide microdata on household indebtedness and income, but it would be useful to also collect data on collateral values and on housing company loans.[17] The data will be useful to analyze vulnerabilities, calibrate policy, and understand distributional consequences. Microdata analysis takes time and expertise, necessitating greater staff capacity.

63. **Corporate sector vulnerability analysis should be as developed as that of the household sector.** Although the authorities have been developing the corporate sector analysis, the COVID-19 pandemic and war in Ukraine highlight the importance of monitoring a more comprehensive set of indicators. The use of firm-level data would also help develop indicators of credit quality and of the riskiness of aggregate credit allocation. Developing a systemic risk monitoring framework using firm micro-data will be helpful to assess financial vulnerabilities in a forward-looking manner. Moreover, it would be beneficial to address remaining data gaps. Ongoing work by Statistics Finland to create a comprehensive CRE price index is a step in the right direction.

Borrower-Based Measures

64. **Given heightened vulnerabilities in the household sector, the authorities have activated borrower-based measures to contain systemic risks**. These include: (i) a maximum loan-to-value (LTV) ratio for housing loans of 85 percent, except for first-time home buyers; (ii) proposals to set the maximum maturity of housing loans; (iii) a nonbinding recommendation to lend only if borrowers can keep DSTI ratios below 60 percent in stressed conditions.

[17] Housing company loans represent a significant fraction of debt in Finland, and a large share of these loans is on the household's responsibility to amortize. However, the debtor of these loans is the housing company, and they are not included in the initial definition of the credit register.

65. **To contain vulnerabilities from housing loans, the authorities should include caps on DTI or DSTI in the toolkit.** This will require changes to the ACI. The MoF working group on financial indebtedness proposed a maximum upper limit on DTI ratios in 2019. The government abandoned proposals to legislate on a DTI due to concerns about its distributional impact, particularly on younger individuals. Analytical work undertaken during the FSAP finds that introducing a DTI is beneficial, even on distributional grounds (see TN on Macroprudential Policy, and forthcoming IMF working paper).

66. **If DTI or DSTI caps are not feasible, a sectoral SyRB could be used to increase capital requirements on banks who lend to high-DTI/DSTI customers.** However, DTI or DSTI caps are preferred to a sectoral SyRB because they have a direct effect on borrowers, protecting them from potential future negative shocks, and prevent leakages to other sectors.

Capital-Based Measures

67. **The board of the FIN-FSA significantly relaxed macroprudential capital requirements during the COVID-19 pandemic.** It released all SyRB requirements on credit institutions in April 2020. The Other Systemically Important Institutions (O-SII) buffer for OP Financial Group was lowered by 1 percent. The Board of FIN-FSA decided in June 2022 not to re-introduce the SyRB given the potential impact of the war in Ukraine.[18] Finland has never activated the CCyB.

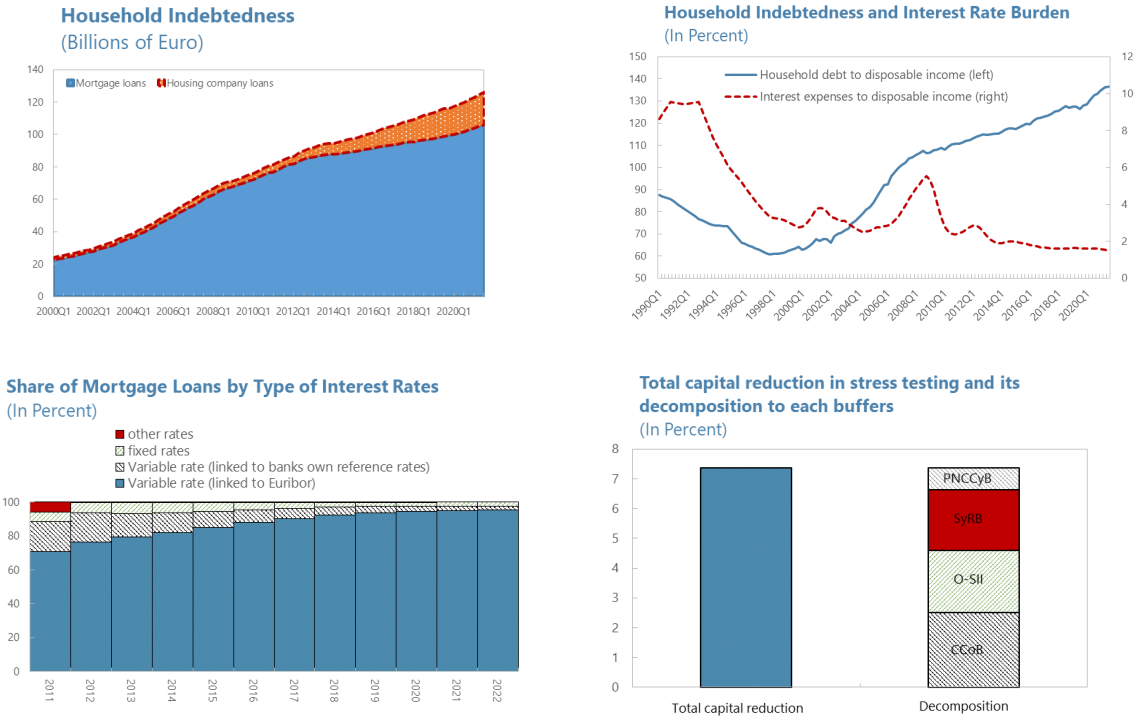
68. **The authorities should reactivate the SyRB once circumstances allow and introduce a positive rate of CCyB in a standard risk environment (positive cycle-neutral CCyB)**. The SyRB should be reintroduced at the earliest opportunity to address structural risks from high household indebtedness and interconnectedness in the Nordic financial system once uncertainty and headwinds from the war in Ukraine abate. The COVID-19 pandemic showed that an unexpected contraction in credit is possible even without signs of excessive credit buildup. A positive cycle-neutral CCyB can be used as a releasable buffer in this circumstance but will require legislative change.

69. **An estimated positive cycle-neutral CCyB for a representative Finnish bank is around 0.75 percent of RWA.** The bank stress testing exercise is one way to calibrate a CCyB, as the solvency stress test sets the required level of macroprudential buffers and the necessary level of the SyRB to meet macro-financial risks from household debt. Taking the Capital Conservation Buffer and O-SII buffers as given to be used to cover the capital loss, for the typical bank, the positive cycle-neutral CCyB and SyRB are estimated at around 0.75 percent and 2.0 percent, respectively. The positive cycle-neutral CCyB is a residual after deducting CCyB, SyRB, and O-SII buffers, assuming that all exposures are domestic. However, banks have foreign exposures, and their capital requirements also depend on reciprocity mechanisms for CCyB. Also, the size of the buffer depends on the severity of the stress test, which hinges on the authorities' views on how large the shocks banks need to be prepared for (see TN on Macroprudential Policy).

[18] For the O-SII buffers, it has been announced that the FIN-FSA will increase Nordea's and OP Financial Group's buffers by 0.5 percentage points on January 1, 2023. The transposition of Capital Requirements Directive (CRD) V into Finnish law also means that the next time that a SyRB is implemented by the authorities, it will be additive to an O-SII buffer.

Figure 14. Finland: Vulnerabilities from the Housing Sector and the Configuration of Capital

Household indebtedness has increased through mortgage loans and housing company loans. Household debt burdens are vulnerable to interest rate increases given that most housing loans are variable rate. For the configuration of capital buffers, the solvency stress test results provide decompositions of the needs of each capital.



Source: Statistics Finland, International House Price Database, IMF staff calculation.
Note: Household indebtedness ratio (Figure 2) is higher because OECD data define indebtedness including "other accounts payable."

C. Climate Risk

70. **Financial institutions and supervisors need to increase their capacity on climate risk oversight, particularly to comply with forthcoming regulations.** The EU's Sustainable Finance Disclosure Regulation sets out ESG disclosure requirements for financial market participants to strengthen protection of end-investors. Market participants note that compliance costs are significant, and data are not as robust as needed. Some financial institutions have established in-house databases on ESG-related risks. The authorities should build on progress to date by enhancing their analysis, extending the disclosure of climate risks, and aligning their practices with supervisory expectations. However, quarterly meetings with LSIs on ESG-related risks should be complemented by supervisory climate stress tests.

FINANCIAL SAFETY NET AND CRISIS MANAGEMENT

71. **The Finnish financial safety net and crisis management arrangements rest on sound statutory foundations**. The EU Banking Recovery and Resolution Directive (BRRD) established a comprehensive statutory regime for supervisory early intervention, crisis management and resolution in Finland.

72. **As Finland is part of the European Union and the Euro Area, the management of distressed financial institutions takes place within a European framework**. Under that framework, the Single Resolution Board (SRB) has primary responsibility for decisions relating to the resolution of larger and cross-border institutions. The FFSA is responsible, under the SRB's oversight, for the resolution of other smaller banks. The FFSA has sole responsibility for executing resolution measures for all Finnish banks—both SIs and LSIs.

73. **Cooperation has resulted in improvements in the resolvability of Finnish banks**, including with respect to their compliance with Minimum Requirement for Own Funds and Eligible Liabilities ("MREL"). At a national level, the Finnish authorities have also improved internal and inter-authority crisis preparedness. In reflection of the interconnectedness across Nordic-Baltic region, in 2018, the Finnish authorities signed an updated MoU with Nordic-Baltic authorities focused on improving coordination with respect to managing crisis in the regional financial system.

74. **Recent developments reinforce the need for full operational readiness in the Finnish authorities' crisis management arrangements.** The authorities have made good progress in developing crisis management capabilities and procedures and gathering practical experience. However, work remains to fully operationalize the new crisis management framework and ensure that resolution tools can be used at speed and with confidence to protect national and regional financial stability. This is particularly the case for the FFSA and BoF given their responsibilities for implementing resolution actions and as lenders of last resort under the preferred resolution strategy for Finnish SIs and LSIs.

75. **The authorities should increase the centralization of cross-authority crisis cooperation and coordination in the Crisis Management Cooperation Group**. It should have responsibilities for coordinating cross-authority preparations for, and management of, future crises (but not decision making). There is a high level of interdependence related to the sequencing of the respective independent actions that each authority needs to take as firms begin to experience stress or fail. As a result, the new crisis management cooperation group should also play a role in coordinating the authorities' work to formalize respective internal crisis management practices so that they best support coordinated authority action under agreed crisis management plans. It should undertake regular monitoring to ensure that resources dedicated to crisis management are commensurate with specific statutory functions.

76. **Under SRB guidelines, SIs and LSIs are expected to have removed remaining barriers to resolvability by January 1, 2024.** This includes valuation and funding in resolution reporting capabilities. The FFSA has defined expectations for firms to comply based on Single Resolution Board (SRB) and European Banking Authority (EBA) resolvability policy and a requirement to self-assess compliance. Based on the experience gathered with SIs, FFSA applies the SRB's heatmap methodology assessing LSI resolvability. To support consistent evaluation of firm-specific actions to improve resolvability, the FFSA should develop a resolvability scoring framework (or adopt one if developed by the Single Resolution Board) for Finnish LSIs ahead of 2024. Such a framework should capture examples of good and bad practice in firm's implementation of resolvability expectations. It will also support the prioritization of FFSA verification of firm-specific capabilities and on-going

maintenance. The FFSA should ensure that the resolution plans for SIs and LSI with an amalgamation structure can be implemented at speed, and with certainty, over the resolution weekend while ensuring SRM resolvability expectations are tailored to take account of their legal entity structure.

77. **The FFSA should develop and publish its resolution mechanics to use the resolution tools, prioritizing the bail-in tool initially.** This published bail-in mechanic should define the FFSA's approach to key policy choices related to valuation timelines, treatment of resolved bank shares, issuance of new shares or interim instruments, and approach to ensuring compliance with change in control and other regulatory requirements under the European prospectus directive. The FFSA should explain to host authorities of Finnish headquartered banks how the existing crisis management and resolution framework interacts with the new tools as failure to do so may trigger a fragmented crisis response or incentivize pre-emptive host actions in a crisis.

78. **The FFSA should consider publishing its approach to assessing the impact on depositors and the financial system of LSI liquidation.** This is because the FFSA has determined that a significant proportion of its LSI population will enter resolution rather than liquidation in the event of failure and given its importance for assessing the public interest test and its approach to setting resolution strategies for LSIs. Publishing would enable the wider European approach for LSIs to benefit from the methods developed in Finland and ensure they remain fit for purpose.

79. **The BoF should ensure that its Emergency Liquidity Assistance (ELA) and funding in resolution lending capabilities are fully operational.** Building on existing internal ELA policies and procedures, the BoF should further develop its internal preparedness to support lending to failed banks whose solvency and viability has been restored through the application of resolution tools and the development of a credible restructuring plan.[19] This preparedness should include defining internal collateral haircuts and pricing assumptions for crisis lending as well as regularly testing its ELA lending arrangements with its counterparties. With the FFSA, the BoF should formalize a non-firm specific approach to addressing liquidity needs for Finnish banks in resolution should they arise so that reporting and operational issues can be identified as part of planning.

80. **On deposit guarantee arrangements, the FSSA Deposit Guarantee Fund (DGF) should ensure that it has sufficient funds under its direct control to ensure its financial autonomy and minimize its dependency on borrowing from banks to support a payout.** A well-funded and backstopped DGF is important both to support rapid payout of covered deposits if required but also given its role in contributing to the cost of resolution actions. Ensuring the DGF can deploy its funds to support resolution costs is particularly important for situations where banks are not able to issue MREL due to prolonged loss of access to wholesale markets or for firms that do not have sufficient MREL resources. The FFSA should outline how the counterfactual insolvency valuation analysis as a basis for assessing the amount of DGF funds that it could contribute would be done. The FFSA should take a prudent approach and ensure that its prefunded DGF, and its policy advice on the appropriate target level ensures it is sufficient for a range of crisis scenarios (e.g., deposit payouts in the case of a concurrent failure of several mid-size LSIs).

[19] This is derived and consistent with the Eurosystem agreement on emergency liquidity assistance, November 2020.

FINANCIAL INTEGRITY

81. **An assessment by the Financial Action Task Force (FATF) identified areas of Finland's AML/CFT regime where major improvements are needed, importantly in AML/CFT supervision.** Although the 2019 FATF assessment rated AML/CFT effectiveness of Finland's international cooperation, national coordination, financial intelligence and money laundering investigation and prosecution as substantial,[20] major improvements are needed in other 7 out of 11 assessed outcomes. Importantly, the effectiveness of AML/CFT supervision was assessed as low, with fundamental improvements needed in the supervisors' ML/TF risk understanding, implementation of a risk-based AML/CFT supervisory model, guidance to obliged entities and sanctioning for AML/CFT non-compliance by financial institutions.

82. **Since the FATF assessment, Finland's AML/CFT supervisory framework has been strengthened.** The supervisor (FIN-FSA) has increased resources in line with the FATF's Recommended Actions and progress is being made in relation to the understanding of ML/TF risks and development of risk-based AML/CFT supervision. In addition, guidance to supervised entities on reporting of suspicious transactions has been issued. Finland has also made progress in addressing some of the technical compliance deficiencies identified in the FATF assessment, receiving upgrades in ratings for three FATF Recommendations, remaining partially compliant with 7 Recommendations.[21]

83. **Further measures are needed to improve the effectiveness of AML/CFT supervision.** A banking sector risk assessment, which the FIN-FSA is in the process of developing, will be instrumental in developing further the ML/TF supervisors' risk understanding and can inform a risk-based approach to ML/TF supervision. In particular, the variety and quality of the sources of information used to inform ML/TF risk assessments of institutions can be improved and additional focus on the residual risk of financial institutions to better focus its supervisory resources. A particular focus on cross-border transactions and non-resident risks, including collection and incorporation of payments data and refining approach to the geographic ML/TF risk is recommended against the backdrop of increased cross-border payments activity since the Nordea headquarters' move to Finland and growing financial flows with offshore financial centers (as in the IMF's past Offshore Financial Center Assessment Program).

AUTHORITIES' VIEWS

84. **The Finnish authorities welcomed the FSAP and appreciated the insightful and useful discussions during the FSAP missions.** They valued the IMF's extensive work and engagement with a wide range of stakeholders and the insights provided by an external assessment of the financial sector's resilience and the overall framework for financial sector oversight in Finland. The authorities

[20] Effectiveness ratings can be either a High, Substantial (considered sufficient), Moderate, or Low level of effectiveness (considered insufficient, and subject to follow-up procedures).

[21] Technical compliance ratings for the FATF 40 Recommendations can be either compliant, largely compliant (considered sufficient), partially compliant or non-compliant (considered insufficient, and subject to follow-up.

consider the FSAP to be an important tool in assessing financial stability and risks.

85. **The authorities broadly agreed with the IMF team's assessment and recommendations.** They welcomed the IMF's endorsement of Finland's continued progress in strengthening regulation, supervision, and the financial oversight framework since the last FSAP in 2016. They noted that the financial sector remained resilient through the shocks stemming from the pandemic and Russia's war in Ukraine, but given the war and subsequent energy crisis, the economic and inflation outlook turned gloomier during the FSAP process.

86. **The authorities agreed with the IMF's assessment that structural risks and vulnerabilities regarding Finland's financial stability emanate from a large and concentrated banking sector, household indebtedness, and interconnections in the Nordic-Baltic region.** They also shared the IMF's view that the Finnish banking system's solvency provides resilience to severe macrofinancial shocks, but that there are vulnerabilities relating to the funding structure. Regarding banking regulation and supervision, the authorities welcomed the IMF's assessment that the oversight framework is sound and has been further enhanced since the previous FSAP, and they agreed that further improvements can be made.

87. **While the authorities' experiences with the current institutional framework for macroprudential policy have been positive, they agreed with the IMF on the need to enhance Finland's macroprudential toolkit.** They welcomed the IMF's recommendation that new borrower-based macroprudential tools be introduced to address household vulnerabilities and that a positive cycle-neutral countercyclical capital buffer be considered, while also acknowledging that compliance with these would require legislative changes. The authorities were committed to continuing to enhance their systemic risk monitoring framework, for instance by addressing the existing data gaps and strengthening the analysis of disaggregated data. They expect the positive credit register, which is to be operational in 2024, to improve the quality of data used for macroprudential analysis and policymaking.

88. **Regarding regulation and supervision of pension insurance companies, the authorities noted that the regulatory changes made in 2017 and thereafter have already reduced the procyclical nature of the system.** They noted that although there is always room for improvement, the robust solvency regulation is essential for pension system stability and in safeguarding earnings-related pension benefits.

89. **Regarding crisis management and resolution for the banking sector, the authorities agreed that the crisis management arrangements in Finland have been significantly enhanced since the 2016 FSAP and rest on sound foundations.** They saw merit in further enhancing cooperation and collaboration between the authorities while keeping in mind the responsibilities and mandates of each authority. They agreed with the IMF in recognizing a need to improve the framework for liquidity in resolution, though acknowledging that possible European-level solutions will need to be accounted for in this.

Table 4. Finland: Selected Economic Indicators

	2020	2021	2022	2023	2024	2025	2026	2027	2028
						Proj.			
				(Percentage change, unless otherwise indicated)					
Output and Demand (volumes)									
GDP	-2.2	3.0	2.0	0.0	1.3	1.3	1.3	1.3	1.2
Domestic demand	-2.0	2.8	3.5	0.1	0.8	1.6	1.3	1.3	1.3
Private consumption	-4.0	3.7	2.5	-0.1	0.6	0.7	0.9	0.8	0.8
Public consumption	0.3	2.9	1.9	0.9	0.1	0.9	0.9	1.0	1.0
Gross fixed capital formation	-0.9	1.5	4.3	-0.3	1.0	3.5	2.0	2.1	2.1
Net exports (contribution to growth in percent of GDP)	-0.7	-0.2	-1.5	-0.1	0.5	-0.3	0.0	0.0	0.0
Prices, Costs, and Income									
Consumer price inflation (harmonized, average)	0.4	2.1	7.2	4.4	2.5	2.2	1.8	1.8	1.8
Labor Market									
Labor force	-0.4	2.2	1.9	0.5	0.1	0.0	0.2	0.0	0.0
Employment	-1.5	2.4	2.8	0.0	0.4	0.2	0.2	0.2	0.0
Unemployment rate (in percent)	7.8	7.6	6.8	7.3	7.0	6.9	6.9	6.8	6.8
Potential Output									
Output gap (in percent of potential output)[1]	-2.7	-0.9	0.1	-0.8	-0.5	-0.3	-0.1	0.0	0.0
Growth in potential output	0.9	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.2
				(Percent of GDP)					
General Government Finances[2]									
Overall balance	-5.5	-2.7	-1.5	-2.6	-2.2	-2.5	-2.5	-2.7	-2.8
Primary balance[3]	-5.4	-2.8	-1.6	-2.6	-2.2	-2.4	-2.4	-2.6	-2.8
Structural balance (in percent of potential GDP)[4]	-3.4	-2.2	-1.8	-2.0	-1.9	-2.3	-2.4	-2.6	-2.7
Structural primary balance (in percent of potential GDP)[5]	-3.3	-2.2	-1.9	-2.0	-1.9	-2.2	-2.2	-2.5	-2.7
Gross debt	74.8	72.3	72.1	73.6	74.7	75.9	77.1	78.7	80.3
Net debt[6]	-64.1	-72.1	-66.5	-61.3	-56.8	-52.3	-48.2	-44.1	-40.0
Balance of Payments									
Current account balance	0.7	0.6	-2.9	-2.9	-1.7	-0.9	-0.6	-0.5	-0.3
Goods and services balance	0.2	0.2	-3.0	-3.1	-2.1	-1.6	-1.3	-1.2	-1.1
Net international investment position	-4.5	-1.4	-4.1	-6.8	-8.2	-8.7	-8.9	-9.1	-9.0
Gross external debt	222.7	208.1	211.9	215.1	216.3	216.1	216.5	217.4	217.4

Sources: Bank of Finland, BIS, International Financial Statistics, IMF Institute, Ministry of Finance, Statistics Finland, and IMF staff calculations.

[1] A negative value indicates a level of actual GDP that is below potential output.

[2] Fiscal projections include measures as specified in the General Government Fiscal Plan.

[3] Adjusted for interest expenditures and receipts.

[4] Not adjusted for COVID-related one-off measures.

[5] Adjusted for interest expenditures and receipts. Not adjusted for COVID-related one-off measures.

[6] Defined as the negative of net financial worth (i.e., debt minus assets).

Table 5. Finland: Financial Soundness Indicators

(In Percent)

	2015	2016	2017	2018	2019	2020	2021
Capital Adequacy							
Regulatory Capital to Risk-Weighted Assets	22.9	23.3	21.4	21.5	20.5	20.6	20.6
Regualatory Tier 1 Capital to Risk-Weighted Assets	21.5	21.9	19.6	19.6	18.3	18.6	18.6
Total Capital to Total Assets	5.8	7.1	6.1	4.8	6.4	6.5	6.8
Asset Quality and Exposure							
Non-performing Loans to Total Gross Loans 1/	0.9	1.0	0.7	1.0	1.5	1.5	1.5
Earnings and Profitability							
Return on Assets	0.6	0.7	0.6	1.8	0.5	0.5	0.8
Return on Equity	9.1	8.9	7.6	26.2	6.5	6.2	9.3
Non-interest Expenses to Gross Income, percent	58.3	58.4	61.3	58.7	63.7	61.7	57.1
Personnel Expenses as Percent of Noninterest Expenses	0.4	0.4	0.4	0.5	0.4	0.4	0.5
Interest Margin to Gross Income	38.9	36.8	40.9	46.4	47.7	49.6	47.6
Liquidity							
Liquid Assests to Total Assets (Liquid Asset Ratio)	17.6	21.3	14.2	8.9	17.7	17.3	18.2
Liquid Assests to Short term Liabilities	22.4	25.1	20.9	19.1	22.1	21.7	22.2
Customer Deposits as Percent of Total (non-interbank) Loans	65.7	72.4	76.6	109.9	57.1	60.0	63.3
Memorandum Items							
Change in Housing Price Index (in percent, year average)	0.6	0.7	1.5	1.2	0.8	3.4	3.9
Total Household Debt (in percent of GDP)	65.2	65.6	65.4	64.4	65.3	68.3	...
Total Household Debt (in percent of disposable income)	125.4	131.7	137.5	144.2	147.3	154.2	...
Household Interest Expenses (in percent of disposable income	1.9	1.7	1.6	1.6	1.6	1.6	1.5
Gross Debt on Non-financial Corporations (in percent of GDP	126.1	115.3	122.4	122.0	117.9	122.6	...

Sources: Bank of Finland, BIS, EBA, ECB, FIN-FSA, and Financial Soundness Indicators.

[1] Break in series in 2017.

Table 6. Finland: Financial Sector Structure

2021	Assets	Number of Institutions	Assets (Percent of GDP)	Notes
Banking Sector (consolidated)	870,440	42	346.2	All the figures for the Finnish banking sector are reported at the consolidated level (prudential scope of consolidation, i.e. insurance activities excluded).
Domestic banking groups	759,029	11	301.9	Incl. deposit taking and non-deposit taking credit institutions at the highest level of consolidation. Number of institutions reported here refers to the number of banking groups and stand-alone credit institutions (not part of a banking group).
of which: Three largest banking groups	707,190	3	281.3	
Subsidiaries and branches of foreign banking groups operating in Finland	111,411	31	44.3	Incl. deposit taking and non-deposit taking credit institutions at the highest level of consolidation. Number of institutions reported here refers to the number of banking groups and stand-alone credit institutions (not part of a banking group).
Insurance and Pension Sector	250,847	59	99.8	
Life	72,953	9	29.0	
Non-life	16,643	34	6.6	Solvency II balance sheet
Employee pension insurance	161,251	16	64.1	Pension assets (technical provisions + solvency capital) of the private sector pension institutions (pension insurance companies, company and industry-wide pension funds). Public sector pensions institutions are excluded.
Investment Funds	179,883	982	71.5	Of which: UCITS-funds 99,200mn EUR, non-UCITS 20,763mn EUR, including also private equity funds, money market funds and hedge funds.
Stock Market Capitalization	345,689	184	137.5	
Corporate Debt				
Outstanding loans and debt securities	263,744		104.9	Incl. loans and debt securities of Finnish corporates (excl. housing corporations).
of which: issued in Finland	176,777		70.3	Loans granted by domestic debtors and debt securities owned by domestic debtors.

Appendix I. Status of Key Recommendations of 2016 FSAP

Recommendations	Time[1]	Status
	General	
Increase the FIN FSA and FFSA's financial and human resources in accordance with the increase in regulatory complexity and supervision intensity in (i) prudential supervision of banks (including systemic branches), (ii) prudential supervision of insurers, (iii) contingency planning/crisis management, (iv) macroprudential policy analysis, and (v) investment funds and their managers.	I, C	**Partially implemented.** The FIN-FSA has increased resources since the previous FSAP in different supervisory functions (especially in (i) banking supervision). On the other hand, SSM LSI methodology is derived from the SI methodology which is significantly more comprehensive compared to FIN-FSA's pre-SSM approach. Furthermore, new risks and challenges are emerging which reform the supervisory practice and processes and require the acquisition of new skills such as: the challenges of cyber resilience, the potential opportunities of fintech, the growing sophistication of threats from criminal activity (money laundering and terrorist financing), or the impact of environmental and climate (E&C)-related risks on banking. The FFSA's resources have been significantly increased since 2016, in conjunction with it becoming more established since its foundation in 2015, and with increased resources following Nordea's re-domiciliation. During 2021 the FFSA's human resources were 19.6 FTEs (compared to 12.5 in 2016).
Expand cooperation arrangements with other Nordic supervisors to include (i) formal region-wide sharing of supervisory data and coordinated inspections, including foreign branches and cross-border management of investment funds, (ii) conduct Nordic stress tests, (iii) strengthen collaboration with macroprudential authorities, and (iv) enhanced CPCM cooperation on systemically important branches and regular crisis simulation exercises.	NT	**Partially implemented.** In 2018, an updated MoU on Cooperation and Coordination on cross-border financial stability between relevant Ministries, Central Banks, Financial Supervisory Authorities and Resolution Authorities of Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway, and Sweden (i.e., the Nordic-Baltic MoU). The MoU is focused on coordinating with respect to managing crisis in the regional financial system. The regional NBSG MoU is complemented by FFSA, FIN-FSA, BoF coordination with other foreign authorities in the context of supervisory and resolution colleges as well as other bilateral resolution planning discussions on a firm specific basis. For example, with respect to Finnish SIs with cross-border operations, FFSA staff participate in the SRB internal resolution teams (IRT) of Nordea, OP and Municipality Finland. However, establishing cross-border cooperation requires significant investment to develop the required shared understanding, coordination mechanisms, and analytical methodologies necessary to support coordinated monitoring, stress testing, and analysis both in peacetime and crisis. Similarly, sustaining such cooperation requires dedicated resources. While there has been positive progress since the last FSAP, discussions are at an early stage, and sustained effort over a multi-year engagement strategy is necessary before home and host authorities have the capability to take coordination action in a crisis with acceptable levels of execution risk.

Recommendations	Time[1]	Status
Strengthen legal protection for staff of all financial oversight agencies.	I, C	**Not implemented.** No progress since previous FSAP. Personal accountability and protection of legal protection for staff of financial oversight agencies is established in the general constitutional and administrative law and generally applicable to the staff in all public authorities.
Risk Analysis		
Ensure banks' Internal Ratings Based models are calibrated to reflect severe stress.	NT	**Fully implemented.** See recommendation on TRIM project.
Intensify monitoring of banks' liquidity positions in foreign currencies and crossholdings of covered bonds used as collateral. Perform liquidity stress tests for various time horizons and stand ready to take supervisory action if imbalances emerge.	NT	**Fully implemented.** In general, the interconnectedness (e.g., via crossholdings of bonds) between banks and financial sectors is analyzed in the context of both microprudential and macroprudential supervision at the FIN-FSA and Bank of Finland and in the EA/EU level fora. Since the previous FSAP, FIN-FSA/ECB has carried out several liquidity stress testing exercises and scenario analyses on the Finnish banks.
Banking Supervision		
Amend law to grant the FSA full Pillar 2 powers for decisions on capital and liquidity requirements and other supervisory measures.	NT	**Partially implemented.** The powers granted to the FIN-FSA by the ACI have been strengthened with the latest ACI changes, although there is still room for clarity. Powers granted to the ECB, among others, include requiring institutions to apply a specific provisioning policy, restricting, or limiting business operations or network of institutions or to request divestment of risky activities, requiring the reduction of the risk inherent in the activities, products, and systems of institutions. The powers given to FIN-FSA are narrower. For instance, the FIN-FSA cannot enforce a specific provisioning policy as an early intervention power. The FIN-FSA can take early intervention measures (i.e., restricting variable remuneration, obligating to change the strategy or administrative structure, limiting distribution of funds) if it assesses that "the adequacy of own funds or liquidity of a credit institution in relation to the total risk cannot be verified in another appropriate manner." In practice this assessment is done through SREPs. However, in the CRD and the BRRD, the supervisory powers are not linked to SREP. The wording of the ACI could also be better in terms of clarity when it combines the supervisory powers of the CRD as well as early intervention powers of the BRRD.
Ensure effective ongoing monitoring of banks' internal risk models following the upcoming SSM comprehensive review (TRIM project).	MT	**Fully implemented.** Internal models are assessed as part of model supervision. The ECB's TRIM (Targeted Review of Internal Models) project focusing on SI banks has been finalized and the same supervisory principles have been applied to LSIs. Based on the supervisory findings, some restrictions and limits have been imposed to Finnish banks' internal models. All in all, FIN-FSA has enhanced its internal model supervision

Recommendations	Time[1]	Status
		(e.g., a separate division focused on internal models and on-site inspections has been established since the previous FSAP).
Macroprudential Policy Framework		
Clearly define a macroprudential policy mandate of the FIN-FSA beyond the measures approved in laws.	NT	**Not implemented**. No change has been made in the FIN-FSA's macroprudential policy mandate. The macroprudential authority still has limited powers to introduce new macroprudential tools or issue recommendations (only entitled to issue nonbinding recommendations).
Create a household loan register.	NT	**Partially implemented.** The data content of the upcoming register is almost completed. The legal act was approved and adopted in Summer 2022. The positive credit register is expected to be launched in spring 2024.
Introduce a systemic risk buffer and a loan-to-income limit.	I, NT	**Partially implemented.** A systemic risk buffer was introduced in Finnish legislation on January 1, 2018 and was set for all credit institutions (at levels 3 percent/2 percent/1.5 percent/1 percent) on 29 June 2018 (effective from July 1, 2019 onwards). The buffer requirement was removed for all credit institutions on 6 April 2020 due to the pandemic. A loan-to-income limit (or any other income-based measure) is not available in Finnish legislation and is not expected to be introduced in the near future. However, the FIN-FSA Board introduced a non-binding recommendation on loan applicants' lending standards in 2022. The need to introduce a sectoral systemic risk buffer for mortgages with high LTI/DTI/LSTI/DSTI ratios will also be assessed in 2022-23.
Finalize the plan to introduce floors for the risk-weights used in internal models.	I	**Fully implemented.** A 15 percent risk weight floor (pursuant to Art. 458 of the CRR) for Finnish IRB banks' residential mortgage loans was set on 26 June 2017 (effective from January 1, 2018 for two years). The decision was renewed on 28 June 2019 (effective from January 1, 2020 for one year). On September 30, 2020, the FIN-FSA Board decided not to extend the validity of the risk weight floor due to the marginal and declining impact of the measure. At the banking sector level, the average risk weight for Finnish mortgage loans exceeds the 15 percent limit.
Contingency Planning and Crisis Management		
Formalize inter-agency cooperation on crisis preparedness and management at the national level, possibly through an expanded mandate for the FFSA Advisory Council.	NT	**Partially implemented.** Finnish authorities coordinate BRRD related preparatory work through the FFSA Advisory Board. The legislative mandate of the FFSA Advisory Board has not been expanded beyond this since the last FSAP. More recently, Finnish authorities (MoF, MoSAH, FIN-FSA, BoF, FFSA) signed a crisis coordination MoU which established a new Crisis Management Coordination Group which met for the first time in early 2022. While cross-authority

Recommendations	Time[1]	Status
		coordination has improved since the last FSAP and further increased due to COVID and war in Ukraine, more work is required to fully institutionalize cross-authority crisis coordination of work to 1) prepare for, and 2) manage crises.
Under the oversight of the FFSA Advisory Council, ensure agency-specific and national financial crisis planning.	C, NT	**Partially Implemented.** There has been good coordination among the authorities in the development of crisis plans for SI and LSI recovery and resolution, as well as in responding to the recent COVID and Ukrainian crises. Progress has been made to establish information dependencies between the authorities, the legal arrangements in place to support information sharing and developing the systems for FFSA access to relevant supervisory information. As firm-specific crisis management plans develop these arrangements will need to be further developed and expanded including to ensure the BoF can access the resolution plans for domestic SIs and LSIs to enable it to prepare for its function as lender of last resort.
Expedite resolution planning for systemic financial institutions.	NT	**Partially Implemented.** There has been good progress in resolution planning for SIs and LSI with both complying with national resolution planning and MREL in close cooperation with SRB. Drawing on SRB and EBA policy, the FFSA has established clear internal processes and processes and procedures to support its resolution planning work. However, much work is still required by SIs and LSI to comply with non-MREL resolvability expectations and for FFSA to assess firms' actions consistently as well as verify the capabilities of the firm systems described in their self-assessment reports.
Define strategies for liquidity assistance to banks in resolution and introduce an indemnification arrangement for ELA losses if incurred by the BoF.	NT	**Not implemented.** Under the Eurosystem monetary framework, the BoF has the statutory responsibility for provision of ELA and bears the costs and risks inherent in doing so. It has developed internal arrangements to define the policy framework and considerations related to the provision of ELA. However, BoF has not taken any additional steps since the last FSAP at a national level to specify publicly its role in ELA or funding in resolution beyond what is already set out in the European agreed framework for national central banks. The BoF and the FFSA have not developed any formalized agreements, defined scenarios or handling strategies for considering together how to address the risk of banks in resolution needing access to its temporary collateralized liquidity support.
Nonbanks		
Upgrade legislation to cover the supervisory actions and any other measures required in the event of	I	**Not implemented.** There have not been any significant changes in relation to resolution of a major PIC, which is why a crisis simulation exercise and

Recommendations	Time[1]	Status
pension insurer or fund distress and if resolution becomes necessary.		consequential action is recommended. There is, however, recent successful experience of resolving a smaller PIC through merger into one of the largest PICs.
Ensure adequacy of action plans for life insurers to meet Solvency II requirements, including by conducting regular stress testing under adverse scenarios.	NT	**Partially implemented.** Insurers are producing ORSAs as required under Solvency II, and FIN-FSA is reviewing them as part of the risk assessment and creation of firm specific 'heat-map' risk assessments. FIN-FSA also engaging with EIOPA review of Solvency II and Finnish insurance companies also participate regularly in EU-wide stress tests (conducted by EIOPA). FIN-FSA developing its own tools to review Solvency Capital calculations by insurance companies and conduct stress tests in addition to the companies.
Monitor fund managers' risk management processes, increase the use of supervisory data to analyze risks, and improve FIN-FSA's capability to conduct market surveillance	NT, C	**Implemented.** Risk management inspections and thematic reviews on liquidity risk management have been conducted. FIN-FSA are participating in ESMA Common Supervisory reviews and are currently reviewing liquidity. Participating with market players was praised during the recent crises. Questions remain on access to data during periods of extreme stress which does not rely on direct discussion with market participants.
[1] C = continuous; I (immediate) = within one year; NT (near term) = 1-3 years; MT (medium term) = 3-5 years.		

Appendix II. Risk Assessment Matrix

Risk	Overall Level of Concern	
	Relative Likelihood	Expected Impact if Materialized
Intensifying spillovers from Russia's war in Ukraine. Further sanctions resulting from the war and related uncertainties exacerbate trade and financial disruptions and commodity price volatility, with Europe, LICs, and commodity-importing EMs among the worst hit.	**High**	**High** A negative shock would hit imports and exports, which further hit vulnerable sectors in the Finnish economy, weakening investment and growth, an increasing NPLs. Funding costs rise for corporate borrowers, reducing credit availability.
Commodity price shocks. A combination of continuing supply disruptions (e.g., due to conflicts and export restrictions) and negative demand shocks causes recurrent commodity price volatility and social and economic instability.	**High**	**High** A negative shock would hit imports and exports, which further hit vulnerable sectors in the Finnish economy, weakening investment and growth, an increasing NPLs. Funding costs rise for corporate borrowers, reducing credit availability
Deepening geo-economic fragmentation and geopolitical tensions. Broadening of conflicts and reduced international cooperation accelerate deglobalization, resulting in a reconfiguration of trade, supply disruptions, technological and payments systems fragmentation, rising input costs, financial instability, a fracturing of international monetary and financial system, and lower potential growth.	**High**	**High** Lower economic growth, higher input costs, supply disruptions and changed trade patterns will result in lower real incomes, lower firm profitability resulting in increased NPLs.
De-anchoring of inflation expectations and stagflation. Supply shocks to food and energy prices sharply increase headline inflation and pass through to core inflation, de-anchoring inflation expectations and triggering a wage-price spiral in tight labor markets. Central banks tighten monetary policy more than envisaged leading to weaker global demand, currency depreciations in EMDEs, and sovereign defaults. Together, this could lead to the onset of stagflation.	**Medium**	**High** Significant market losses in bank portfolios as asset values fall. Potential significant liquidity impact on banking sector, given high reliance on wholesale funding. Higher funding costs impact corporate borrowers, reducing credit availability, including for households. Higher retail interest rates worsen household indebtedness.
Local COVID-19 outbreaks. Outbreaks in slow-to-vaccinate countries or emergence of more contagious vaccine-resistant variants force new lockdowns or inhibit commerce. This results in extended supply chain	**Medium**	**High** Financial conditions tighten. Contraction of consumption and investment impairs financial sector health. Changing work

Risk	Overall Level of Concern	
	Relative Likelihood	Expected Impact if Materialized
disruptions, slower growth, capital outflows, and debt distress in some EMDEs.		patterns undermine CRE and prime residential house prices. Increased NPLs undermine bank balance sheets.
Cyberthreats. Cyberattacks on critical physical or digital infrastructure (including digital currency platforms) trigger financial instability and disrupt economic activities.	**Medium**	**Medium** Cyberattack on critical banking infrastructure necessitates use of backup payment system and decreases public confidence in the banking system.

Banking Sector: Solvency Stress Test		
Top-Down by IMF		
Institutional Perimeter	Exercise	Top-Down by FSAP team.
	Institutions included	Seven banks subcategorized as SIs (four banks) and LSIs (three banks). Among the SIs, the largest is internationally oriented, and 80 percent of its total exposures are cross-border, one does government guaranteed residential mortgages only, one focuses on retail banking, and one is a subsidiary of a foreign bank. The latter has become an SI recently and the analysis will be reduced due to limited data availability. One SI is a branch of a foreign bank, and it does not hold capital; thus, it is excluded from the solvency analysis, although it is included in the total profitability. All LSIs are domestically focused. One of them focuses on asset management and two on retail banking.
	Market share	Total coverage is about 93 percent of the banking sector, with 85 percent for SIs and 8 percent for LSIs.
	Data and baseline date	Multiple data vintages: December 2021 (year end, starting point for Profit and Loss), March 2022 and July 2022 (starting point for balance sheet and capital). Supervisory data: Bank balance sheet and supervisory statistics (including FINREP and COREP), information on interest rate risk in the banking book (IRRBB), liquidity risk and market risk sensitivities (including STE templates) provided by the authorities and the ECB. Expected Default Frequency sourced from Moody's. Further supervisory information was provided, including the probability of defaults by credit portfolios, and a bank-specific stage transition matrix by portfolio from FINREP. Market and publicly available data, such as information from ECB statistical data warehouse on funding and lending rates by type of asset and funding portfolios. Scope of consolidation: banking activities of the consolidated banking group for banks having their headquarters in Finland. Foreign sub sidiaries are assessed at the unconsolidated level covering domestic activities only. Coverage of sovereign and non-sovereign securities exposures: debt securities measured through fair value (FVPL and FVOCI) and amortized cost (AC) account. Coverage of lending exposure: credit institutions, nonbank financial institutions, household, and corporate (Finland, Sweden, Norway, Denmark).
Channels of Risk Propagation	Methodology	FSAP team satellite models and methodologies. Balance-sheet regulatory approach. Market risk is treated as an add-on component, with a separate calibration. The market risk stress scenario has an impact on both capital resources (either via profit and loss or via Other Comprehensive Income (OCI)) and capital requirements (RWA). The impact on capital resources

Banking Sector: Solvency Stress Test		
Top-Down by IMF		
		comprises of positions in the trading book as well as other fair valued items in the banking book. The impact on RWA for market risk evolves with balance sheet assumptions. Traded risk impact from the revaluation of trading assets (FVPL) and securities classified as fair value thorough other comprehensive income (FVOCI) securities by counterparty: central government (by country issuers), credit institutions, other financial institutions, and nonfinancial corporates. Credit spreads on sovereign, credit institutions and corporate securities interpolated using bank-specific residual maturity at the book and issuer level (i.e., sovereign issuers by country and individual portfolio using a duration proxy. Valuation effects assessed using a modified duration approach. Hedges are considered ineffective under stress.
		The losses for securities portfolios are based on duration approach. Losses on equities (both long and short position) were based on stock market price movement specified by the scenario. For internally modelled exposures (IRB), projection of PiT and TTC PDs, LGD, EAD and RWA. For standardized (STA) exposures, projection of new flows of defaulted exposures, coverage ratio for defaulted loans, and risk weight downgrade for performing exposures. Credit risk projections for IRB and STA exposures cover credit institutions, nonbank financial corporates, and households. Corporate PDs for largest exposures are proxied by Moody's EDFs. The resulting impact is translated into credit loss impairment charges and shifts to RWAs due to capital charges for defaulted assets. Provisioning for IRB and STA was modeled using IFRS9 transition matrix approach. Transition matrices, PiT PDs, PiT LGDs for loan and securities classified under financial asset measured through amortized cost (AC), and other comprehensive income (FVOCI) were modeled using COREP data. Funding costs projected at the portfolio level using funding structure by product (retail and wholesale deposits, secured and unsecured debt securities, repo, etc.) and maturity bucket (overnight vs. term). Funding projections capture systematic risk (linked to the scenario) and idiosyncratic risk (for spreads on debt instruments issued over benchmark). Funding cost projections utilized bank level data on 12 Irish banks from COREP templates. Lending rates were projected at the system level and attached to bank-specific interest rates and outstanding amount at cut-off date (interest rate on corporate and household loans and debt securities).
	Stress test horizon	2022 Q1–2025 Q4 (4 years)
Tail Shocks	Scenario	Two Scenarios: A baseline scenario based on the April 2022 World Economic Outlook macroeconomic projections. An adverse scenario that captures the key risks in the RAM. This scenario relies on GFM, a structural macroeconometric model of the world economy, disaggregated into forty national economies, documented in Vitek (2018). Scenarios for foreign countries where Finland has significant exposure is extracted from GFM and is internally consistent with country scenarios of other ongoing FSAPs.

Banking Sector: Solvency Stress Test		
Top-Down by IMF		
Risks and Buffers	Risk covered	Risks covered include credit (on loans and debt securities), market (valuation impact of debt instruments through repricing and credit spread risk as well as the P&L impact of net open positions in market risk factors such as foreign exchange risks) and interest rate risk (IRRBB) on the banking book. Concentration risk by sensitivity analysis. Solvency and liquidity risk interactions, mainly through asset haircut.
	Behavioral Adjustment	For the growth of the banks' balance sheet over the stress-test horizon, a quasi-static approach is used. Asset allocation and the composition of funding remain the same, whereas the balance sheet grows in line with the nominal GDP paths of major geographical exposures and subject to reduced credit demand in material jurisdictions and FX shock from revaluation effects on foreign currency loans specified in the stress test scenario. However, to prevent the banks from deleveraging, the rate of change of balance sheets is set at a floor of zero percent. This constraint is binding in the adverse scenario. In projecting RWAs, standardized and IRB portfolios are differentiated. For the standardized portfolios, RWAs changed due to the balance sheet growth, new inflows of non-performing loans, new provisions for credit losses, exchange rate movements, and the conversion of a portion of off-balance sheet items (undisbursed credit lines and guarantees) to on-balance sheet items. For the IRB portfolios, through-the-cycle-PDs, downturn LGDs and EAD for each asset class/industry are used to project risk weights. Interest income from non-performing loan is not accrued. We assume that banks do not issue new shares or make repurchases during the stress test horizon. Dividends are assumed to be paid out at 30 percent of current period net income after taxes (i.e., only if net income is positive) by banks that were in compliance with supervisory capital requirements.
Regulatory and Market-Based Standards and Parameters		National regulatory framework Basel III regulatory minima on CET1 (4.5 percent) and include any requirements due to systemic buffers for three other systemically important institution (LSI). In addition to the CET1, the team evaluated total banking capital adequacy ratio against the 8 percent level, their Tier 1 capital ratio against the 6 percent benchmark and the leverage ratio during the stress test horizon against the 3 percent Basel III minimum requirement. The same hurdle rate was used for baseline and adverse scenario. The hurdle rate for CET1, T1 and total capital adequacy do not include capital conservation and capital countercyclical buffers as well as pillar 2 requirement. Banks that end the stress test horizon with a capital level or a leverage ratio below the relevant hurdle rates, are considered to have failed the test.
Reporting Form for Results	Output presentation	The results of the stress tests are reported using a variety of charts and tables. This potentially includes the evolution of capital ratios for the system as a whole and as groups of retail banks and large international banks. Outputs also include information on impact of different result drivers, including profit components, losses due to realization of different risk factors; capital shortfall as sum

Banking Sector: Solvency Stress Test		
Top-Down by IMF		
		of individual shortfalls; in euros and in percent of nominal annual GDP; number of banks and corresponding percentage of assets below the regulatory minimum (or below the minimum leverage ratio).
Banking Sector: Liquidity Stress Test		
Top-Down by IMF		
Institutional Perimeter	Exercise	Top-Down by FSAP team.
	Institutions included	Six banks subcategorized as SIs (three banks) and LSIs (three banks). One SI is not included due to lack of data
	Market share	Total coverage is about 80 percent of the banking sector, with 73 percent for Sis and 7 percent for LSIs.
	Data and baseline date	Latest data: April 2022 Source: supervisory data (LCR, NSFR, and ALMM Maturity Ladder template) Scope of consolidation: banking activities of the consolidated banking group for banks having their headquarters in Finland. Foreign subsidiaries are assessed at the unconsolidated level covering domestic activities only.
Channels of Risk Propagation	Methodology	Basel III LCR and cash-flow based liquidity stress test using maturity buckets by banks, incorporating both contractual and behavioral (where available) with assumption about combined interaction of funding and market liquidity and different level of central bank support. Liquidity test in EUR, USD, and Sterling.
Risks and Buffers	Risks	Funding liquidity Market liquidity
	Buffers	The counterbalancing capacity, including liquidity obtained from markets and/or the central bank's facilities. Expected cash inflows are also included in the cash-flow based and LCR-based analysis.
Tail shocks	Size of the shock	The run-off rates are calibrated to reflect scenarios of system-wide deposit runs and dry-up of unsecured wholesale and retail funding, with additional run-off for non-resident deposits on top of the retail and wholesale run-off, which is calibrated following historical events, recent international experience in liquidity crisis and IMF expert judgment. Retail scenario key assumptions are: (i) 10 percent run-off rates for stable retail deposits and 20 percent for less stable retail; (ii) 10-35 percent for operational deposits and 20-40 percent for non-operational deposits; and (iii) no changes in liquid assets weights Wholesale scenario key assumptions are: (i) 5 percent run-off rates for stable retail deposits and 10 percent for less stable retail; (ii) 15-35 percent for operational deposits and 40-60 percent for non-operational deposits; and ((iii) no changes in liquid assets weights

Banking Sector: Solvency Stress Test		
Top-Down by IMF		
		Combined run-off and price shock scenario key assumptions are: (i) 10 percent run-off rates for stable retail deposits and 20 percent for less stable retail; (ii) 15-35 percent for operational deposits and 40-60 percent for non-operational deposits; and ((iii) liquid assets weights reduction of 0-5 percent for level 1 assets, 3-20 for level 1 covered bonds, 5-15 percent for level 2A assets and 5-25 for level 2B assets The liquidity shocks will be simulated for 1–month for both LCR, and 5-days, 1-month, 3-months, and 1-year for the cash-flow based approach. The haircuts of HQLA are calibrated against ECB haircuts, past Euro Area FSAPs, and market shock for investment securities and money market instruments in the solvency stress test.
Regulatory and Market-Based Standards and Parameters	Regulatory standards	Consistent with Basel III regulatory framework (LCR). Liquidity shortfall by bank.
Reporting Format for Results	Output presentation	Liquidity ratio or shortfall by groups of banks and aggregated (system wide). Number of banks that still can meet or fail their obligations.
Banking Sector: Interconnectedness Analysis		
Top-Down by IMF		
Institutional Perimeter	Exercise	Top-Down by FSAP team.
	Institutions included	Cross-border contagion: country-pair bilateral exposure across Nordic/Baltic region, rest of Euro Area, US, and Russia.
	Data and baseline date	BIS consolidated banking statistics.
Channels of Risk Propagation	Methodology	Balance-sheet model: Network model by Espinosa-Vega and Solé (2010).
Tail shocks	Size of the shock	Pure contagion: financial distress in foreign countries. Default threshold: banks would default if their CET1 capital ratios fall below 4.5 percent (regulatory minimum).
Reporting Format for Results	Output presentation	Capital shortfall systemwide, by bank and by group: contagion and vulnerability scores. Amplification and cascade effects, direction, and size of spillovers within the network.
Banking Sector: Funding Cost		
Top-Down by IMF		
Institutional Perimeter	Exercise	Top-Down by FSAP team.
	Institutions included	Two banks that do not issue bonds.
	Market share	Total coverage is about 85 percent of the banking sector.
	Data and baseline date	Publicly available market data on banking bond yields (July 2022), historical bank-specific balance sheet and Profit and Loss data from Bloomberg, and solvency stress-testing projections.

Banking Sector: Solvency Stress Test		
Top-Down by IMF		
Channels of Risk Propagation	Methodology	Panel regression between cost of funding and bank specific performance indicators.
Risks and Buffers	Risks	Credit spreads. Interest rate.
	Firm behavioral response	Firms are not allowed to raise capital.
Tail shocks	Size of the shock	Drop in banking profitability and asset quality due to solvency stress test.
Regulatory and Market-Based Standards and Parameters	Regulatory standards	Market-based analysis, no capital thresholds are applied.
Reporting Format for Results	Output presentation	Relationship between banking performance and access to funding. Projection of marginal wholesale funding cost under the alternative scenarios.
Nonbank Financial Intermediation Sector: Market Risk		
Top-Down by IMF		
Institutional Perimeter	Exercise	Top-Down by FSAP team.
	Institutions included	Four pension insurance companies, compared with local government pension fund (KEVA) and state government pension fund (VER).
	Market share	Total coverage is about 100 percent of the private pension sector.
	Data	Publicly available market data from TELA.
Channels	Methodology	Investment portfolio analysis. Decomposing valuation changes in asset prices into return on existing assets and acquisition of new assets. Cyclicality and pairwise correlation analysis of the decomposed components of equity investment for pension funds.
Risks and Buffers	Risks	Sharp decline in equity prices.
	Firm behavioral response	Firms sell or acquire new assets, in particular listed equity shares, to comply with the solvency regulations.
Reporting Format for Results	Output presentation	Correlation between equity investment portfolios of major pension insurance companies. Cyclicality of equity investment in major pension insurance companies compared with that for public pension funds.