



State Treasury
Republic of Finland

22

**Debt Management
Annual Review 2022**



State Treasury
Republic of Finland

Debt Management Annual Review 2022

The Debt Management Annual Review summarises the funding, liquidity management and risk management operations of Finland's central government in 2022. This year's special theme is energy.

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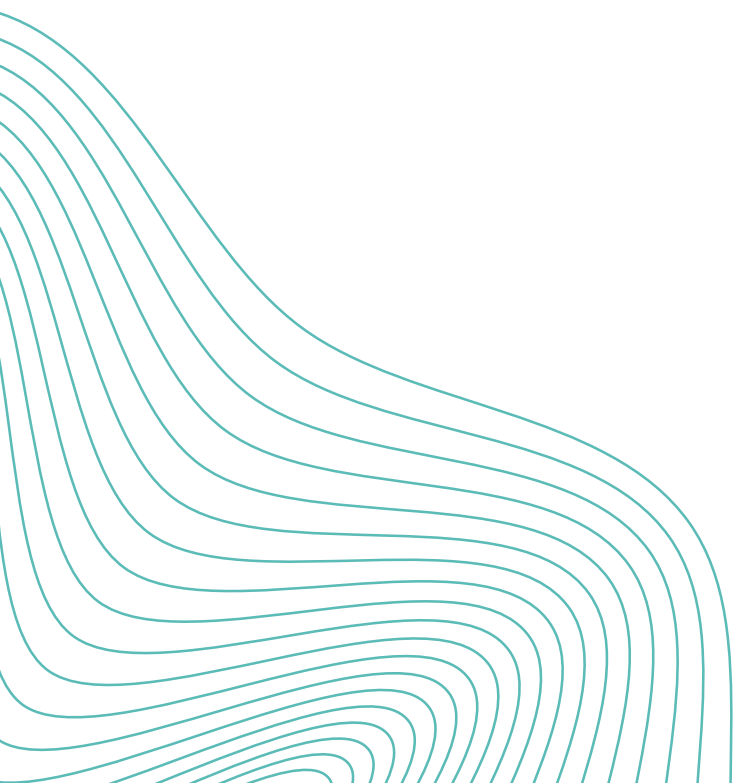
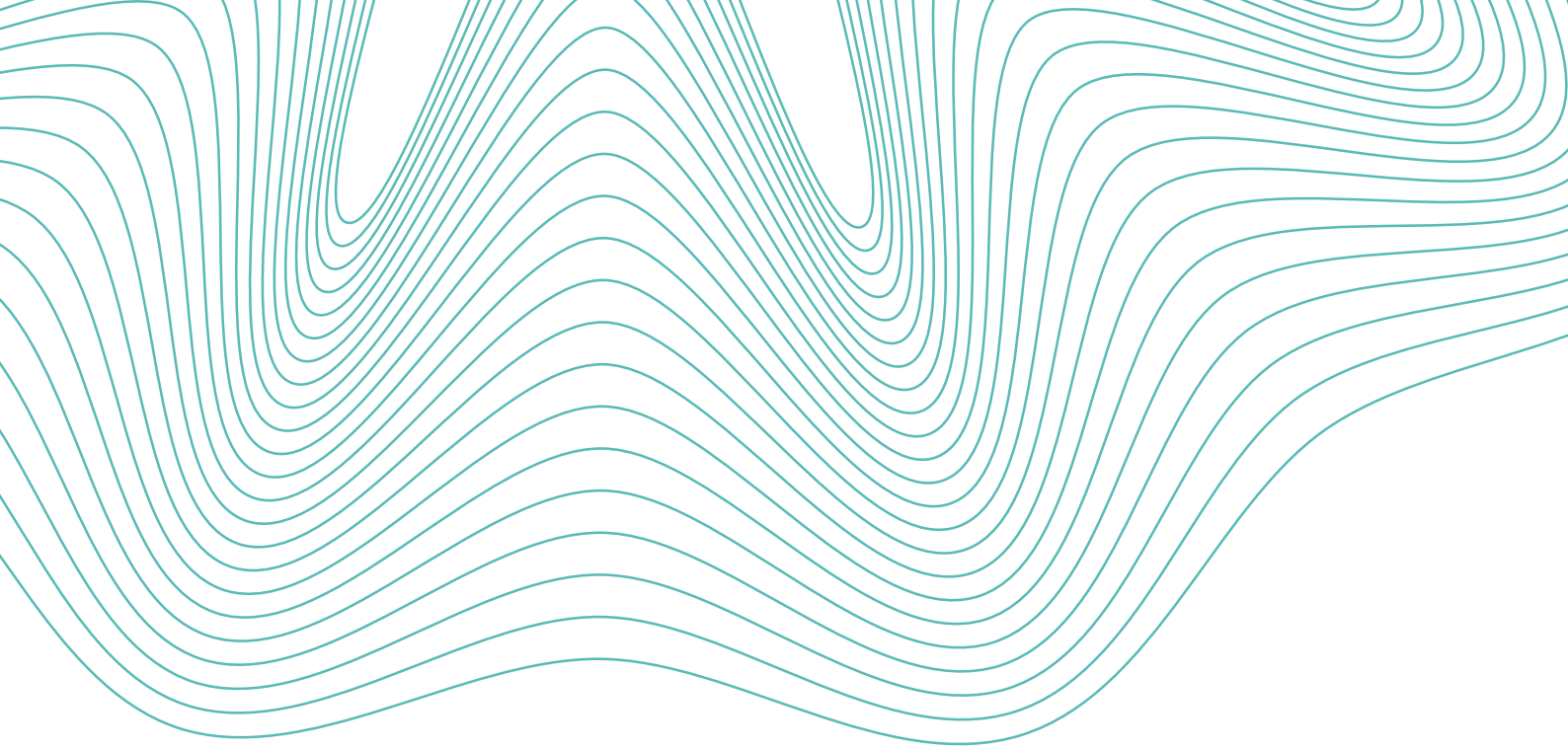
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Contents

1	Competitive issuance environment ahead.....	6
2	Operating environment.....	10
3	The Finnish “Ruxit” – decoupling from Russian energy speeds up energy transition.....	18
4	Funding.....	22
5	Finland is firmly on the path towards green transition.....	32
6	Energy consumption: statistics.....	36
7	ESG highlights of 2022.....	39
8	Risk management.....	44
9	Energy prices to level off in 2023.....	51
10	Key figures.....	56

An aerial photograph of a wind farm in a snowy forest at sunset. Two large wind turbines are visible, one in the foreground on the left and another further back on the right. The landscape is covered in snow, with dense evergreen forests. The sky is filled with dramatic, colorful clouds in shades of orange, yellow, and blue, suggesting a sunset or sunrise. The overall scene is serene and highlights renewable energy in a natural setting.

1

Competitive issuance environment ahead

DIRECTOR OF FINANCE TEPPU KOIVISTO

Sovereign bond supply in the eurozone will be record high in 2023. This creates a very competitive issuance environment, where efficient and wide investor diversification, solid funding strategy and stable credit outlook are virtues that will be rewarded.

For this year's edition, our focus is on energy. We have invited two experts to give their views on the future and security of the Finnish energy transition. Traditionally, Russia has been a major supplier of energy to Finland but now, in line with EU policy, Finland has disengaged itself from Russian imports.

Our starting point has not been too far from other European countries. However, a diverse, decentralised and resilient energy system has facilitated a quick cut-off from Russian energy for Finland. See professor **Veli-Pekka Tynkkynen's** assessment (chapter three) of the Finnish "Ruxit" for fascinating insight.

Furthermore, Finland is undoubtedly one of the global forerunners in green energy transition. Moving away from Russian energy will only reinforce this transition. At 42%, the share of energy from renewable sources is already the second highest in EU, and the rapidly growing wind power capacity is turning things even better in the near future by reinforcing the self-sufficiency of Finnish energy production. Director General **Riku Huttunen** adds further colour on chapter five.

The war that changed the market

In 2022, the Russian invasion of Ukraine has been a serious turning point and a realised global event risk that nobody anticipated or wished for. In the beginning of last year, some inflationary pressures were already visible, but the outbreak of war in February and the European dependency on Russian energy turned things complicated. Prices of energy and raw materials rocketed, creating uncertainty around longer-term inflation and growth outlook. Central banks responded to acute price pressures by raising key rates aggressively throughout last year.

1 Competitive issuance environment ahead

Now, European financial markets have witnessed the most rapid rise in bond yields in 40 years. The ultimate cause of market stress has been geopolitical by nature. Higher market volatility reflects concerns related to European energy resiliency and inflation outlook.

At the time of writing, the worst energy price pressures have eased. It seems that Europe has overcome the darkest hours of its energy crisis. However, lots of uncertainty remain and Europe has a long road to resilient and sustainable energy transition.

“European financial markets have witnessed the most rapid rise in bond yields in 40 years. The ultimate cause of market stress has been geopolitical by nature.”

In 2023, the energy crisis is transmitting into sovereign bond markets via channels of governments’ electricity support to private companies and households. This will be funded by additional debt. Therefore, sovereign bond supply in the eurozone will be record high. By the same token central banks’ quantitative easing (QE) policies are turning into quantitative tightening (QT), which means a gradual reduction of acquired QE assets on monetary authorities’ balance sheets.

This will create a very competitive issuance environment for 2023, where efficient and wide investor diversification, solid funding strategy and stable credit outlook are virtues that will be rewarded. We are confident that a stable AA+ rating for the Republic of Finland will continue attract a wide variety of investors.

Issuance outlook

The key function of the State Treasury is to safeguard the liquidity and funding for the central government. In 2022, the Republic of Finland successfully fulfilled its EUR 34 billion issuance programme with net borrowing of EUR 13 billion.

The funding strategy of the Republic of Finland remains the same as in 2022 given the similarity in funding amounts. For 2023, the overall gross borrowing requirement amounts to EUR 38.5 billion. The net borrowing is expected to be EUR 10.4 billion.

Keeping our bonds attractive and creditworthy to investors remains our long-term goal. We believe that Finland's strong credit outlook and commitment to sound governance and sustainable development will support our bonds and serve all our investors well in the coming years.



Teppo Koivisto is Director of Finance at the State Treasury Finland. He is in charge of the central government debt management function, which includes funding, liquidity management, investor relations, risk and strategy.

“The funding strategy of the Republic of Finland remains the same as in 2022 given the similarity in funding amounts.”

The background is a solid blue color. It features two sets of abstract, white, wavy lines. One set is in the upper left corner, and another is in the lower right corner. These lines flow and curve across the page, creating a sense of movement and depth.

2

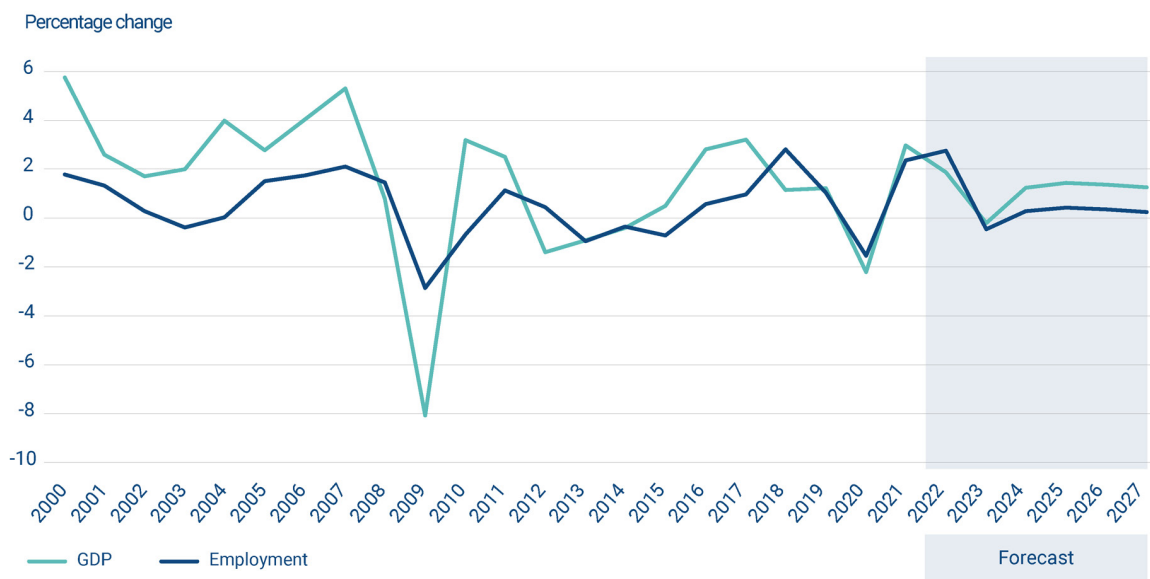
Operating environment

Finland's GDP is expected to have grown by 1.9 per cent in 2022. Exports, domestic consumption and investments all increased in 2022. While economic growth slowed down in the latter part of the year, the growth in employment continued. At the end of 2022, Finland's employment rate was at record-high.

Russia's invasion of Ukraine significantly increased the prices of energy in the spring of 2022 from levels that were already high. The broad-based rise in prices cut household purchasing power as incomes did not keep pace with prices. In Finland, the average inflation rate was 7.1 per cent in 2022.

GDP and employment

Sources:
Statistics Finland, Ministry of Finance Dec/2022



In 2022 GDP rate declined and employment grew.

Public finances

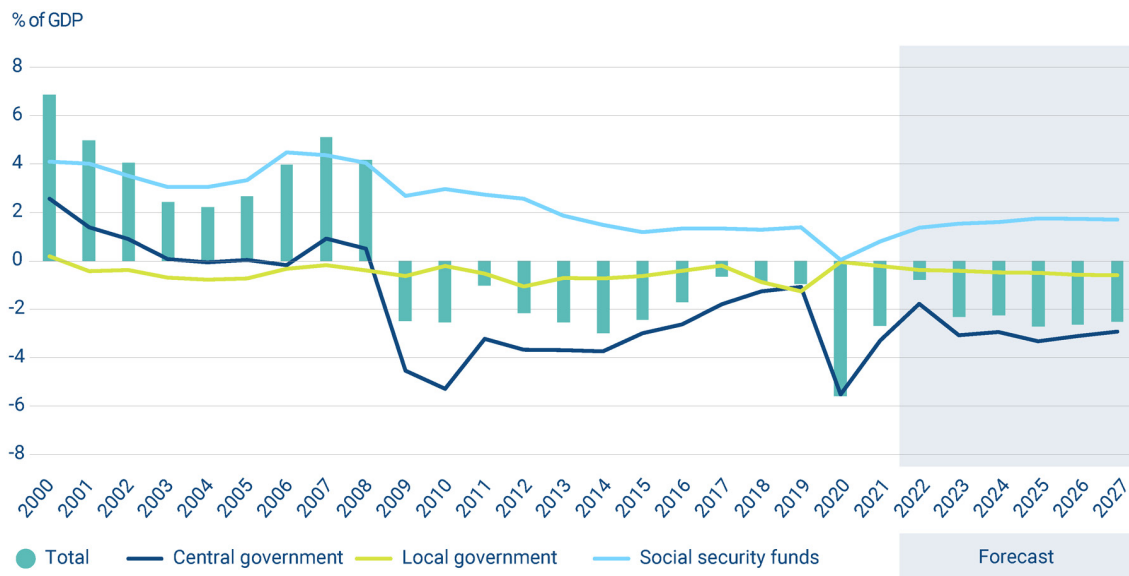
The general government deficit was reduced in 2022 by the strong growth of the economy and employment. The growth in tax revenue was substantial at 7.7%, while expenditures arising from the management of the COVID-19 pandemic were much lower than in the previous years. Supported by strong nominal GDP growth, the general government debt in ratio to GDP has decreased

2 Operating environment

over the past couple of years. However, the Ministry of Finance predicts that it will begin to increase again from 2023 onwards. The debt ratio will be kept on an upward trajectory by substantial deficits in central government and local government, and rapidly rising debt servicing costs.

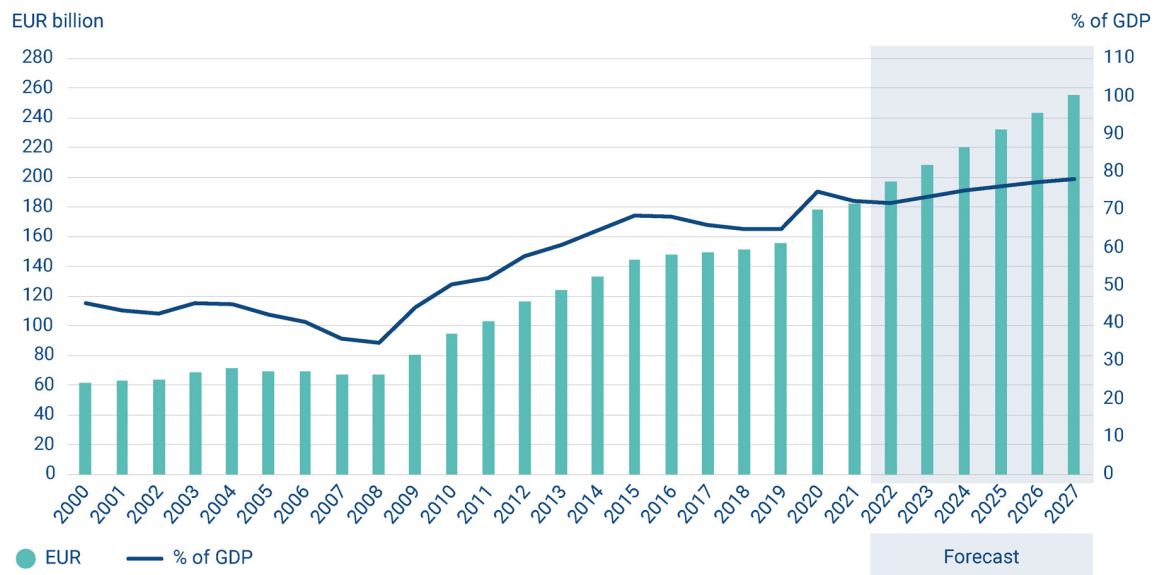
Financial balance of general government

Sources:
Statistics Finland, Ministry of Finance Dec/2022



General government debt

Sources:
Statistics Finland, Ministry of Finance Dec/2022



The graphs show the financial balance of the Finnish general government and the volume of Finland's general government debt. Social security funds are usually running a surplus while central and local government show deficits. In 2022, the general government debt was EUR 196.7 billion. The debt-to-GDP ratio was 71.7%.

The general government deficit declined significantly in 2022 compared to the deficit seen in the previous year. According to the forecast of the Ministry of Finance, the general government deficit was 0.8% of GDP in 2022. The general government gross debt stood at 71.7%. This represented a rather modest decline from the previous year. The estimate for the central government debt was 51.6% of GDP at the end of 2022, while the deficit accounted for 1.8%.¹

Finland's relatively strong public finances, competitive economy and high governance indicators, among other things, are reflected in Finland's high credit ratings. The central government of Finland has solicited credit ratings from two credit rating agencies: Fitch Ratings and S&P Global Ratings. For long-term debt, they are AA+ with stable outlook from both credit agencies.

Interest rate developments

The year 2022 can be described as a violent one, both in the financial markets and on European soil. The energy market crisis emerging from the Russian invasion of Ukraine, combined with bottlenecks in the global supply chains, set inflationary developments on a path unprecedented in decades, and induced a drastic turn in central bank monetary policies both in the United States and Europe. The Federal Reserve hiked its main policy rate by over 4 percentage points and the European Central Bank (ECB) by 2.5 percentage points during the year to prevent inflation becoming entrenched. As a result, government bond yields skyrocketed during the year – on both sides of the Atlantic - making it an exceptionally poor one for bond investors, at the same time when equity markets widely underperformed on inflationary concerns.

Shifts in government bond secondary market rates have reflected changing market perceptions of central bank policy rates' terminal values in the current hiking cycle, which evidently is not over at the time of writing. As the ECB ceased net monetary policy purchases of government, agency and corporate securities, bond supply became increasingly a market driver as many governments in Europe sought to implement support measures for consumers and prepare for contingencies. Since July 2022 only reinvestments of the existing ECB monetary policy bond portfolio have taken place, with some flexibility across jurisdictions to preserve and safeguard monetary policy transmission in the euro area.

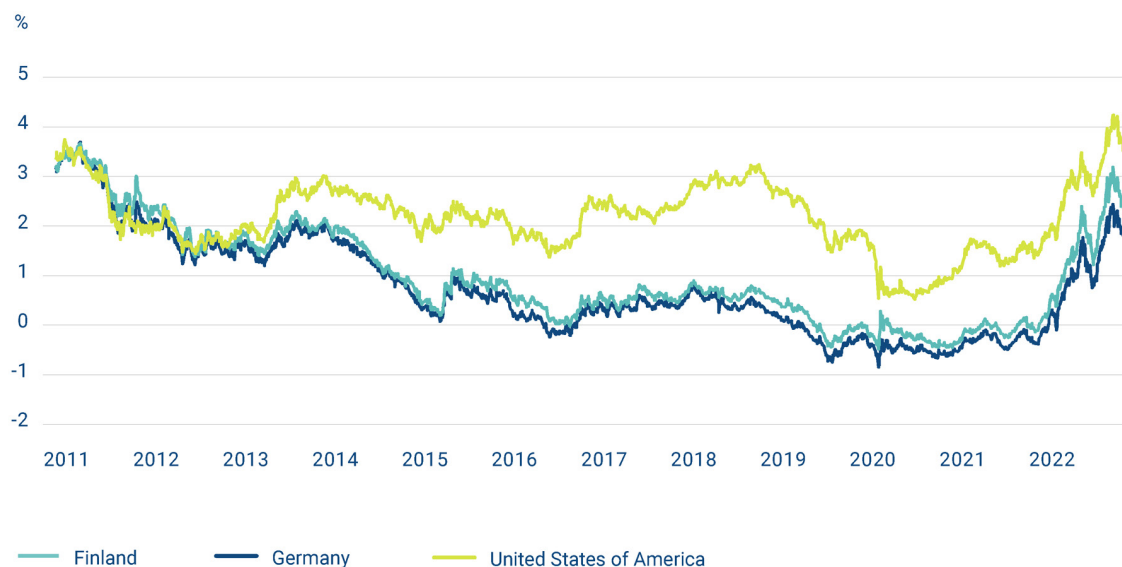
¹ All estimates are from the Ministry of Finance's Economic Survey, Winter 2022.

2 Operating environment

As aggressive monetary policy tightening is increasing the risk of an economic recession, government yield curves have turned downward sloping in many markets during the latter half of 2022, both in the largest European ones and the U.S, as well as for Finland.

10-year government bond yields

Source:
Macrobond



10-year government bond yields of Germany, Finland and the United States in 2010-2022.

Secondary market developments

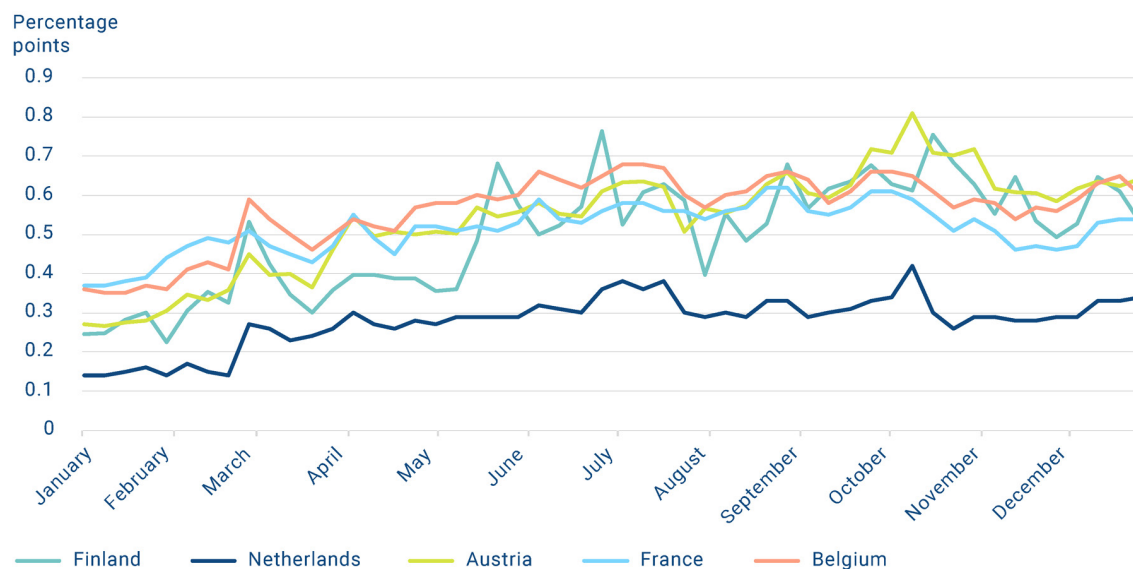
Despite fiscal deficit contracting relative to GDP, there was more net supply of Finnish government bonds (RFGB) in 2022 compared to 2021. Bond yield spread versus Germany widened during the first half of the year along European peers as uncertainties mounted and market liquidity deteriorated. Subsequently the 10-year yield spread to Germany has remained close to mid-year levels, first widening in Q3 and the tightening in Q4. In 2022 the RFGB offered yield pick-up over the Netherlands and in the latter half of the year over France, while remaining tighter to the EU and broadly in line with Austria. In absolute terms there were significant yield shifts, as the current 10-year RFGB yielded below 0.2 % in early January and 3.1% at the end of the year.

Secondary market liquidity for RFGBs, i.e. the euro benchmarks, was affected by the overall volatility and uncertainty the European sovereign debt markets and deteriorated more than that of larger markets, particularly the ones

featuring futures contracts. Some signs of repo specialness were observed, especially for some off-the-run bonds in the shorter end of the yield curve towards the end of the year.

10-year bond spreads to Germany

Source:
Macrobond



The 10-year bond spreads of Finland, the Netherlands, Austria, France and Belgium against Germany.

It is a priority for the State Treasury to work actively with the primary dealers to maintain and further enhance the liquidity of the Finnish government bonds. Finnish government benchmark bonds can be traded on the following interdealer platforms: MTS Finland, BGC eSpeed, and ICAP BrokerTec. The State Treasury does not participate in secondary market activity, and the interdealer trading is based on the activity of the primary dealers and other market participants. In 2022, the nominal interdealer trading volume was on average EUR 4.9 billion per month (EUR 7.7 billion in 2021).

The State Treasury actively follows the primary dealer quoting activity in the secondary markets. There are guidelines for the Primary Dealers on quoting for different maturities in the interdealer market, where the bid-offer spread of the price quotes is observed and tracked. The average bid-offer spread of all the market makers is calculated and each Primary Dealer benchmarked against the average.

Primary dealers in 2022

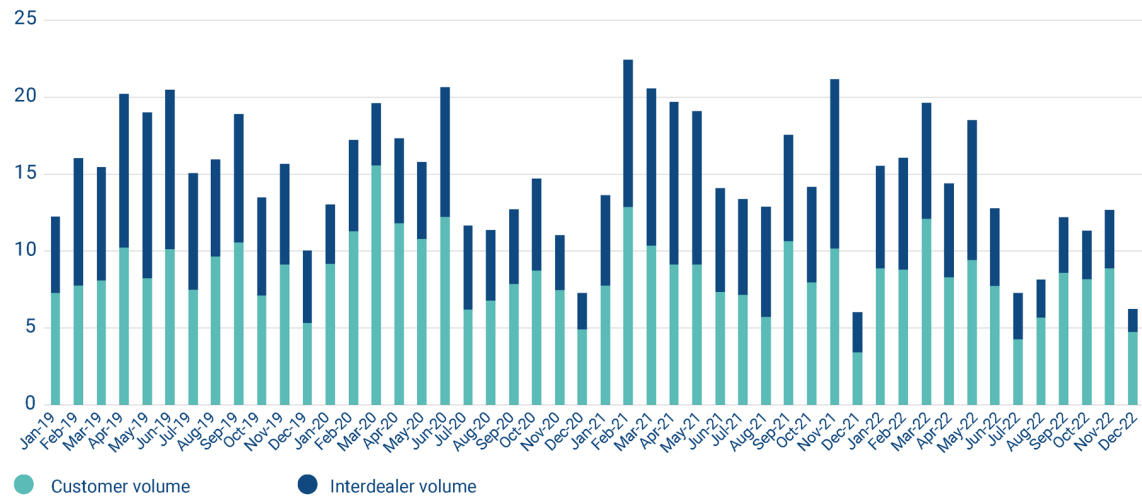
BofA Securities	Barclays	BNP Paribas
Citi	Credit Agricole	Danske Bank
Deutsche Bank	Goldman Sachs	HSBC
J.P. Morgan	Nomura	Nordea
	Société Générale	

On a weekly basis, the State Treasury reports the analysed spread data for the benchmark bond quotes back to the individual Primary Dealer banks. In 2022, there was a deterioration in the bond interdealer market conditions from end of February onwards, and the interdealer market bid-offer spreads widened accordingly especially in the latter half of the year.

Primary dealers report customer trade volumes to the State Treasury within the Euro Market Activity Reporting (EMAR). The reporting takes place on a monthly basis, and the data is consolidated and used for monitoring and analysis. According to the EMAR data, the overall secondary market customer turnover volume decreased slightly in comparison to 2021. The yearly turnover in total was EUR 95.75 billion. The average monthly turnover (sales and purchases) was EUR 8.0 billion in 2022 (EUR 8.5 in 2021). In relative terms, the monthly average turnover volume was 7.5% of the total outstanding euro benchmark bond stock (8.2% in 2021).

Secondary market volumes of Finnish government bonds

Monthly volume
(nominal amount, EUR billion)



In 2021, the nominal interdealer trading volume was on average EUR 7,74 billion per month. The average monthly customer volume was EUR 8,48 billion.



Anu Sammallahti is Deputy Director of Funding and Investor Relations at the State Treasury Finland.



3

The Finnish “Ruxit” – decoupling from Russian energy speeds up energy transition

PROFESSOR VELI-PEKKA TYNKKYNNEN

With its highly diverse energy mix and security of supply thinking, Finland is in a better position than many other countries. However, energy transition can only be encouraged in Finland and elsewhere in Europe if there is understanding of the cross-linkages characterising the current energy crisis.

In Finland as in elsewhere in Europe, there was a strong belief in the interdependence created by energy trade between Russia and Europe. On paper, it looked like that Europe even had the upper hand as one third of Europe’s energy came from Russia, whereas the European market accounted for more than half of Russia’s energy exports.

The idea of Germany’s Ostpolitik was based on the imperative of economic reason: trade was believed to be a force for peaceful coexistence. This approach was largely in line also with Finland’s policy towards its eastern neighbour. It was considered impossible that Russia would break the interdependence between East and West. In 2022, the true nature of Russian imperialism finally became clear to everybody from the strongest apologists for Russian policies to the most ardent believers in interdependence: for Putin, the economy is subordinate to his superpower ambitions.

In February 2022, Finland, like many other EU countries, was highly dependent on Russian energy. But Finland differs from many other EU countries in one respect: while we relied on Soviet and later on Russian energy for foreign policy reasons, we also built a diverse and a relatively resilient energy system. No energy sector plays a dominant role, and thus the Finnish energy mix is well diversified. In Finland, natural gas accounts for only six per cent of total energy consumption. This is the exact opposite of the Czech and German energy systems, where households are directly connected to the flow of Russian gas.

Decoupling from Russian energy has nevertheless been a challenge for Finland as one third

“Finland is fortunate to have started its green transition in time. “Ruxit” will only accelerate this trend.”

of our energy and more than 60% of our energy imports have come from Russia. High overall dependency is where Finland has stood out. Long-term supply contracts, such as those for uranium and LNG are another obstacle to complete exit from Russian energy. Finland, a country governed by the rule of law, cannot renege on its obligations despite the fact that these contracts have been concluded with Russia, which has broken countless international agreements.

Despite this, almost all energy flows from Russia to Finland have already stopped. In this respect, Finland will also be in a better position than gas-dependent Central European countries in the coming year.

Finland was also fortunate in that it started its green transition in time. “Ruxit” will only accelerate this trend. Renewable energy already accounts for more than 40% of our energy consumption, making Finland one of the leaders in Europe in this respect. For example, Finland’s wind power capacity will double over the next three years and a large hydrogen economy is planned alongside it. Most of the wind power plants are built in Western Finland because military considerations have prevented their construction in eastern parts of the country. A solution to this problem is being sought, which is essential as regional inequalities would otherwise deepen and make Finland less resilient as the energy transition progresses.

A great deal is also happening in the traditional energy sectors. The oil refining company Neste had been known as a specialist in refining Siberian oil for decades, but it took the company only six months to switch from Russian Urals crude oil to other grades. Neste is also speeding up the transition from fossil energy. The floating LNG terminal in Inkoo, the latest joint project by Finland and Estonia, became operational at the end of 2022.

“Ruxit and energy transition are
essential to defending democracy,
to protecting the climate and to
guaranteeing European security of
supply and competitiveness.”

Together with the LNG terminal in Hamina, it will replace all Russian natural gas imports, which ended in May 2022.

In the electricity sector, the situation is more difficult as Finland is connected to the European electricity market through the Nordic Nordpool. In Central Europe, electricity prices have been boosted by dwindling and thus expensive natural gas supplies and the prices have also increased in Finland. In the coming year (especially during the winter months), Finland will prepare for controlled power outages if consumption exceeds the supply. This may happen on cold days. However, the Olkiluoto 3 nuclear power plant, which will come on stream in 2023, will bring relief. It will supply 10% of Finland’s electricity needs, the same percentage as the past imports from Russia.

Historically, Finland has benefited from cheap Russian energy an estimated one billion euros each year and large Finnish energy companies (Fortum, Neste and Gasum) have made significant profits from trade with Russia. Morally, it would be right if all these companies across Europe that have benefited from trade with Russia would contribute to the costs of decoupling from Russian energy. Taking responsibility for past mistakes would convince Europeans that the energy crisis is being successfully tackled - together.

With its highly diverse energy mix and security of supply thinking, Finland is in a better position than many other countries. However, energy transition can only be encouraged in Finland and elsewhere in Europe if there is understanding of the cross-linkages characterising the current energy crisis. Ruxit and energy transition are essential to defending democracy, to protecting the climate and to guaranteeing European security of supply and competitiveness.



Veli-Pekka Tynkkynen is Professor of Russian environmental studies at the University of Helsinki and Adjunct Professor of Russian resource and energy policy at the Finnish National Defence University.



4 Funding

In 2022, the realised gross borrowing totaled EUR 34.31 billion. Of this amount, long-term issuance accounted for EUR 17.05 billion. The rest, EUR 17.26, was short-term borrowing. In the coming years, the gross borrowing requirement is estimated to follow this year's pattern and to remain around EUR 35–40 billion annually.

Central government borrowing in 2022

Issuance by instrument type, EUR billion



* Excluding funding for intra-government funds and intra-year T-bill issuance.

The realised gross borrowing amount in 2022 was EUR 34.31 billion. Of this amount, long-term issuance accounted for EUR 17.05 billion and short-term borrowing for EUR 17.26 billion.

Finland's GDP growth was brisk in the first half of 2022, but growth was dragged down towards the end of the year. The Finnish economy proved surprisingly resilient during the exceptional times. The general government budgetary position was supported by nominal growth of the economy, and high employment.

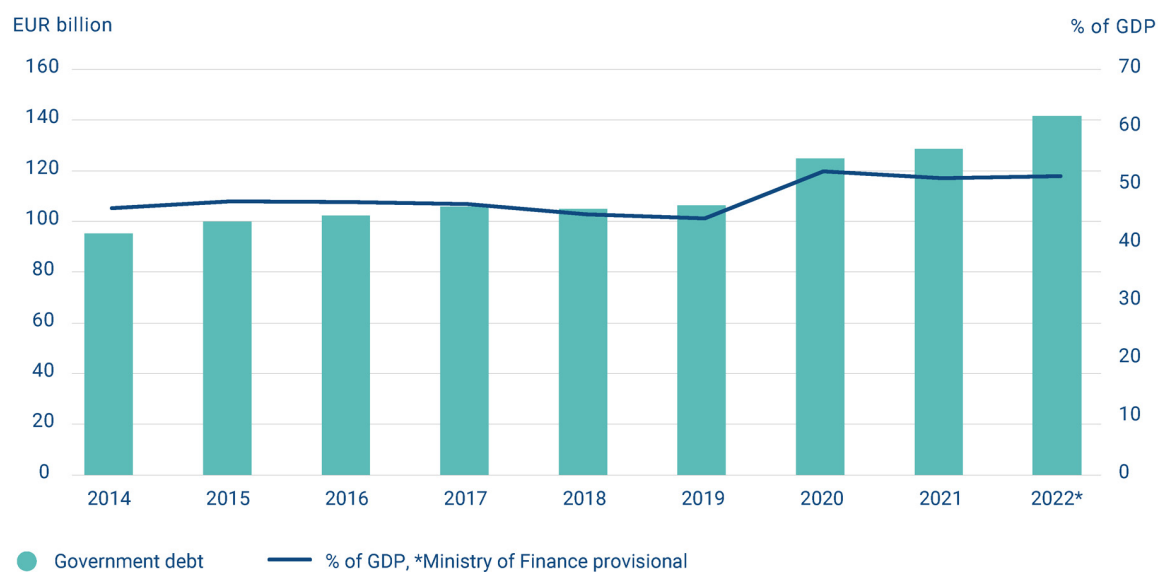
The budgeted gross borrowing in 2022 was EUR 40.944 billion, including EUR 19.306 billion of net borrowing. This net borrowing estimate included funding a EUR 10 billion lending facility for eligible energy companies' electricity market margin calls. No such funding was required as no loans were drawn, or even applied for, under this facility during 2022. However, collateral needs related to interest rate swaps executed for interest rate risk management

4 Funding

raised the borrowing requirement. Such collateral posted is an interest-bearing asset on the government balance sheet.

Subsequently, approximately EUR 6.6 billion less funding than foreseen in the budget was sufficient to cover expenditure and safeguard a sufficient liquidity position of the central government. The realised net borrowing amount was thus EUR 12.68 billion. At the end of 2022, the central government debt stock amounted to approximately EUR 142 billion.

Central government debt

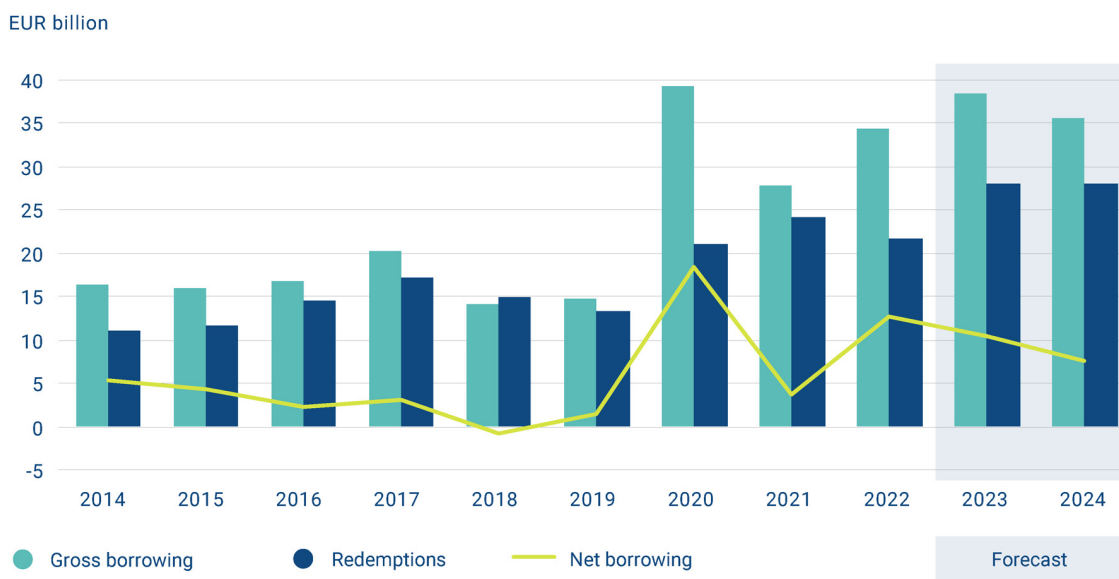


The central government debt was EUR 141.6 billion at the end of 2022. The debt-to-GDP ratio was 51.6%.

According to the budget, the net borrowing requirement for the year 2023 is estimated at EUR 10.42 billion. With redemptions of EUR 28.04 billion, the gross borrowing requirement amounts to 38.46 for the year.

The funding strategy for the year 2023 is to issue three new euro benchmark bonds in syndications, and to tap existing euro benchmark bonds in regular auctions. Market conditions permitting, issuance in currencies other than the euro, potentially a USD benchmark bond, may complement the long-term funding. The share of short-term funding, i.e. Treasury bills, is estimated to account for about 50% of the gross annual borrowing amount.

Redemptions and net borrowing



Redemptions of EUR 21.64 billion took place in 2022 while net borrowing amounted to EUR 12.68 billion.

Funding Strategy

The funding strategy of the Republic of Finland is based on euro benchmark bond issuance. New benchmark bonds are issued in syndicated form. Syndications are complemented with bond tap auctions, which enable increases in the outstanding volumes of the existing bond lines. There is also a foreign currency bond issue programme, called the Euro Medium Term Note (EMTN) programme. The Republic of Finland is committed to issuing in other currencies than the euro to complement its euro-denominated borrowing and to serve a broader base of investors. However, issuance in foreign currencies is subject to market conditions and a reasonable funding cost in comparison to euro issuance.

The current funding volume supports three new euro benchmark bond syndications per year, tap auctions on benchmark bonds, and one benchmark-sized USD bond issue. The short-term funding is carried out by issuing Treasury bills. In terms of maturities, the focus is on issuing current coupon bonds in 5- and 10-year tenors annually. Subject to market conditions and to facilitate sufficient curve maintenance for a liquid benchmark curve up to 30 years, benchmark issues in 15, 20 and 30 years will be conducted accordingly.

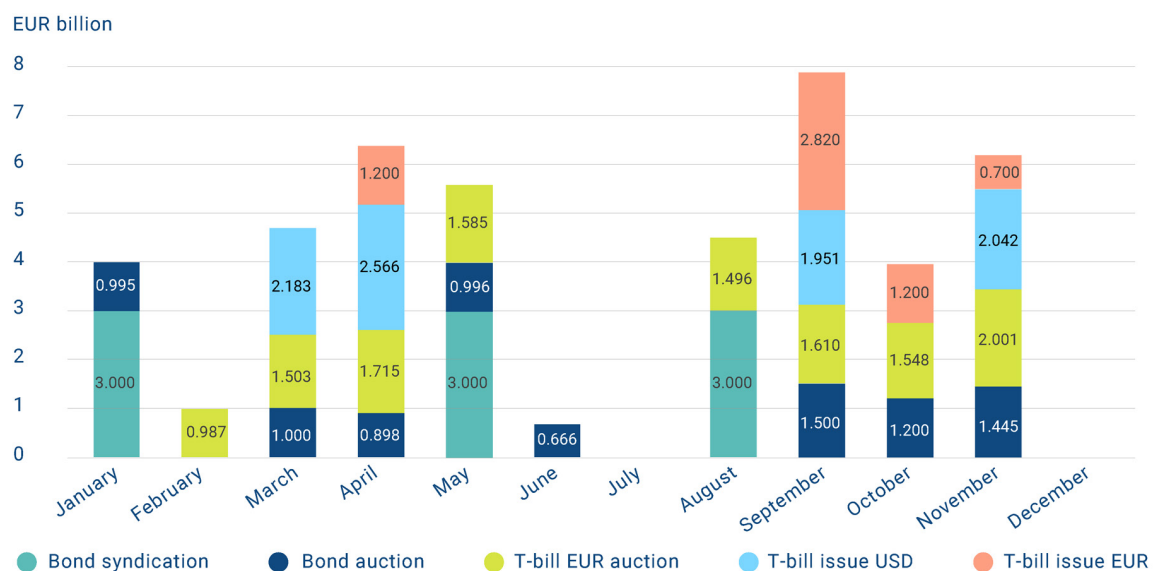
4 Funding

The State Treasury is motivated to preserve Finland's place in the global markets as one of the reliable and acknowledged bond issuers and thus maintain attractive debt instruments and bond issuance in the future.

Funding operations

In 2022, the Republic of Finland issued three new euro-denominated benchmark bonds and conducted eight benchmark bond auctions. In addition, the short-term funding was carried out with Treasury bill auctions and issuance in ECP format.

Operations in 2022



Finland issued three new euro-denominated benchmark bonds and arranged eight bond auction. The short-term funding was carried out by issuing Treasury bills.

Three new benchmark bonds were issued in syndicated format, with an issue size of EUR 3 billion each. The first one, in January, was a new 20-year benchmark bond maturing on 15 April 2043. The bond attracted an order book of over EUR 16 billion with over one hundred investors, including investors such as European pension funds, public institutions, and fund managers.

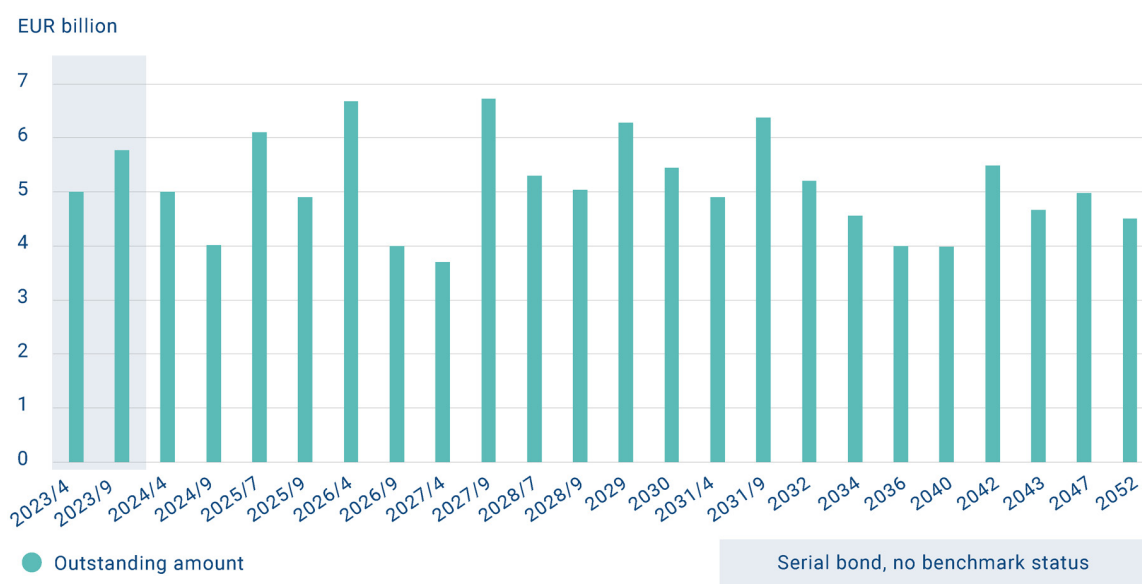
The second bond issue in May was a new 10-year benchmark bond maturing on 15 September 2032. Despite the global turmoil, the bond received solid

demand and an orderbook of over EUR 13 billion from 80 investors, mostly from UK and central European countries.

The third syndicated bond issue of the year was a new 5-year tenor maturing on 15 April 2027. It was issued in late August, and despite the continuing market volatility, the investor allocations in the issue turned out very typical for the maturity. The bond attracted an order book of over EUR 10 billion from over 60 investors.

Benchmark bonds

As in 31 Dec 2022



The majority of all outstanding serial bonds issued by the State Treasury are benchmark bonds.

Tap auctions

The State Treasury publishes a quarterly auction calendar on bond auctions. In 2022, a total of eight bond auctions on existing euro benchmark bonds were conducted. All auctions for the Republic of Finland serial bonds are tap auctions for existing lines. Five auctions took place in the spring term, and three in the autumn term. The total funding volume via serial bond auctions was EUR 8 700 million (EUR 7 235 million in 2021). Three of the auctions were dual

4 Funding

lines with two separate bonds with different maturities auctioned in the same auction. The bid-to-cover ratio, which describes the demand for the auctioned securities, varied between 1.38 and 1.93. The issued amounts were between EUR 392 million and EUR 1 500 million per bond per auction.

Serial bond auctions

As in 31 Dec 2022

Auction date	Maturity year	Issued amount MEUR	Issue yield	Bid-to-cover
18 Jan 2022	2026	995	-0.25%	1.85
15 Mar 2022	2031	1,000	0.75%	1.69
19 Apr 2022	2031	398	1.24%	1.93
19 Apr 2022	2052	500	1.53%	1.76
17 May 2022	2043	996	1.74%	1.51
15 Jun 2022	2043	666	2.51%	1.38
20 Sep 2022	2032	1,500	2.45%	1.45
18 Oct 2022	2032	700	3.03%	1.75
18 Oct 2022	2052	500	2.97%	1.86
15 Nov 2022	2027	695	2.42%	1.93
15 Nov 2022	2047	750	2.66%	1.48

Treasury bill auctions

Auction date	Maturity date	Issued amount MEUR	Issue yield	Bid-to-cover
8 Feb 2022	12 Aug 2022	502	-0.64%	2.26
8 Feb 2022	14 Nov 2022	485	-0.61%	2
8 Mar 2022	14 Nov 2022	752	-0.62%	1.56
8 Mar 2022	13 Feb 2023	751	-0.58%	1.5
11 Apr 2022	14 Nov 2022	975	-0.40%	1.13
11 Apr 2022	13 Feb 2023	740	-0.31%	1.4
10 May 2022	14 Nov 2022	950	-0.33%	1.55
10 May 2022	13 Feb 2023	635	-0.18%	1.91
16 Aug 2022	13 Feb 2023	751	0.38%	1.95
16 Aug 2022	12 May 2023	745	0.58%	1.55
13 Sep 2022	13 Feb 2023	995	0.85%	2.23
13 Sep 2022	12 May 2023	615	1.26%	1.37
11 Oct 2022	12 May 2023	1,003	1.95%	1.18
11 Oct 2022	14 Aug 2023	545	2.25%	1.99
8 Nov 2022	12 May 2023	1,250	2.14%	1.3
8 Nov 2022	14 Aug 2023	751	2.35%	1.7

Short-term funding

The State Treasury issues Treasury bills in euros and US dollars through banks included in the Treasury Bill Dealer Group, according to the financing needs of the central government and in line with guidelines set by the Ministry of Finance.

In 2022, as in previous years, the State Treasury continued to issue euro-denominated Republic of Finland Treasury bills in auctions. In auctions, the price of the security is determined by the bids submitted by the participating counterparties, which for the Finnish Treasury bills are the Treasury Bill Dealer Group. In 2022, eight Treasury bill auctions were conducted. The total amount raised in Treasury bill auctions was EUR 12.4 billion.

The State Treasury may also issue Treasury bills on other occasions, depending on the demand and financing needs, in which case the State Treasury defines the reference price for the issue. This issuance method resembles that of Euro Commercial Paper programmes (ECP). Treasury bills in ECP format may be issued in two currencies: in euros and in US dollars.

In 2022, the ECP format Treasury bill issuance window in USD and EUR was open occasionally during March and April in the spring, and during September, October and November in the autumn. The gross ECP issuance in USD was USD 9.3 billion, and in EUR 5.9 billion.

The average maturity in USD ECP issuance was 4.7 months, and in EUR ECP issuance 4.8 months. The outstanding stocks of USD- and euro-denominated Treasury bills at year end were USD 4 116 million and EUR 13 501 million (USD 1 600 million and EUR 10 363 million on 2021).

Liquidity management

The amount of government cash reserves is based on an assessment of sufficient liquidity and a limit on uncovered net cash flows. Actual cash flows exhibit both intra-month and annual seasonal patterns due to timing mismatches in income and expenditure. Changes in the budget deficit during the fiscal year also affect liquidity management via changes in funding requirements.

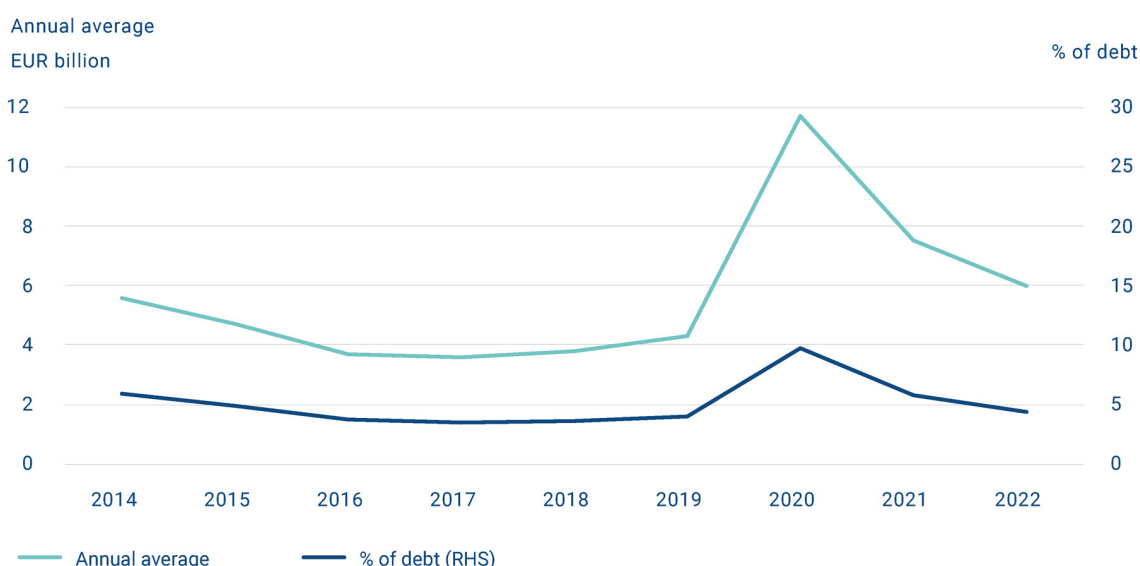
As the primary focus is sufficient liquidity, actual borrowing may deviate from that budgeted for the fiscal year for various reasons, e.g. deferrable

4 Funding

allowances which are budgeted in a specific year but used over a number of years. In practice, less than budgeted borrowing has often been sufficient to cover liquidity needs. This was the case in 2022, when collateral needs increased funding requirements while some sizable of allowances remained unused, as explained above.

Year-end cash balances may also fluctuate and thus affect the borrowing. In the government financial statement the cash buffer consists of e.g. cumulative budget surplus, deferrable allowances, fund of off-budget entities and other short-term debt.

Liquid cash funds



The annual average of liquid cash funds was EUR 6.0 billion or 4.4% of debt in 2022.

The cash reserves are invested for short-term maturities with low-risk counterparties. The Eurosystem's national central banks accept non-monetary policy deposits from EU member state public entities such as debt management offices under a pre-determined set of rules. Thus, the Bank of Finland was a counterparty for short term deposits in 2022. The rules on these deposits were adjusted in September 2022, when the Governing Council of the European Central Bank removed the 0% rate ceiling and set the rate for remuneration of government deposits to remain at deposit facility rate (DFR) or euro short-term rate (€STR), whichever is lower, until 30 April 2023. This temporary change took place in a context of normalisation of monetary policy, and according to the ECB, does not alter the long-term desirability of encouraging market intermediation.

Liquidity management relies strongly on the cash flow forecast system. All government accounting entities forecast their income and expenditures for the next 12-month period into the system. The State Treasury is using this data as a basis for liquidity management decisions.



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5 Finland is firmly on the path towards green transition

DIRECTOR GENERAL RIKU HUTTUNEN

Given Finland's climate targets, the greatest challenge of this decade is to cut the transport sector's emissions – and the final, decisive step is the switch to clean solutions in energy-intensive industries in the 2030s.

Russia invaded Ukraine in February 2022, but it had began its multi-pronged energy war against Europe already in the autumn of 2021. Scarcity of energy is part of Russia's extensive influencing, which tests the strenght of societies. Finland has adapted to a completely new situation quickly. The high share of clean energy and the high level of of preparedness made the change possible.

Here are four key points on the short-term and long-term outlook for Finland's energy policy

Rapid decoupling from Russian energy

Until now, about one third of the energy used in Finland has come from Russia. This figure is now close to zero. The sanctions imposed by the EU and the measures introduced by Finland have stopped all imports of wood fuels, pipeline gas, electricity, oil and coal. At the same time, pipelines will keep many Central European countries dependent on Russian oil and gas for years to come.

Finland's quick exit from Russian energy was made possible by comprehensive preparedness and a consistent approach. To symbolise this, a floating LNG terminal has now arrived in the port of Inkoo and it has been connected to the Finnish natural gas network to secure our gas supply. This is not in conflict with green transition: Over the past 12 months, Finland has cut its natural gas use by more than 50 per cent, which is a record amount. Our dependency on oil products is also exceptionally low.

Renewable energy already accounts for almost half of all energy used in Finland. Some 90 per cent of our electricity is fossil free. An exceptional amount of emission-free power plant capacity was introduced in 2022: more than 2,400 megawatts of wind power and 1,600 megawatts of nuclear power was built in Finland last year.

Supply is what matters

Uninterrupted access to energy is therefore vital for the functioning of society. With its energy networks and ports, Finland has been able to switch to new suppliers. In 2022, we addressed two challenges: new ways to purchase fuels and strengthening of infrastructure. Finland has an agile and efficient security of supply organisation – undoubtedly one of the best in the world.

“From September to December 2022, the consumption of electricity was 7-10 % less than in the previous year.”

However, the energy war has increased the risk of power shortages. In a challenging situation, citizens have substantially reduced their energy consumption and we have managed to keep our electricity supply on a stable basis. From September to December 2022, the consumption of electricity was 7-10 % less than in the previous year. The rapidly growing power plant and network capacity will help to keep the security of supply in Finland at a high level.

The market is the basis for energy supply

As the prices have risen, some commentators have proposed that the electricity market should be restrained and heavy regulation should be introduced. It is clear that the scarcity of energy is reflected in high prices but this does not mean that the market has failed. A well-functioning market is the best way to allocate the resources and the electricity generation in an efficient manner.

Heavy regulation of the electricity market would lead to frequent power shortages. Although Finland will soon achieve self-sufficiency in electricity generation at annual level for the first time since the 1960s, we will still need strong international connections. The cross-border electricity market is an opportunity for us, not a threat.

The Nordic market has also helped to keep prices at moderate levels: in 2022, electricity prices in Finland were the second lowest in Europe. This is based on clean power generation, which has been expanded for several decades: hydropower, nuclear energy and wind power.

Investments are crucial in the long term

The only way to successfully tackle the challenges arising from price developments and the security of supply is to invest in clean energy generation and flexible solutions. In Finland, a record amount of public funding is available for good projects. It is important to speed up the introduction of new innovative technologies. They may be related to energy use and solutions boosting demand response and sector integration.

“We have already achieved significant progress on the path towards a decarbonised energy system.”

The aim of Finland’s national climate and energy strategy is to achieve climate neutrality by the year 2035. We have already achieved significant progress on the path towards a decarbonised energy system. Making the transport sector emission free is the key challenge of this decade. The final, decisive step concerns the energy-intensive industries, which are important to Finland: our steel and chemical industries will switch to hydrogen and other clean solutions in the 2030s.

In their road maps, Finnish industrial operators have shown that they fully support this process and consider it an asset in global competition. The Finnish Government is also prepared to make substantial investments in green transition. To ensure a favourable investment environment, long-term solutions are also needed in the field of energy market regulation in the EU.



Riku Huttunen is Director General of the Energy Department at the Ministry for the Economic Affairs and Employment of Finland.

The background is a solid blue color. It features two sets of abstract, white, wavy lines that resemble topographical map contours. One set of lines is in the upper left corner, and another set is in the lower right corner. Both sets of lines flow from the left towards the right, with the lines in the bottom right corner being more densely packed and forming a more complex, swirling pattern.

6

Energy consumption: statistics

In 2022, Finland's total energy consumption decreased by five per cent compared to the previous year.

Total energy consumption by energy source 2022

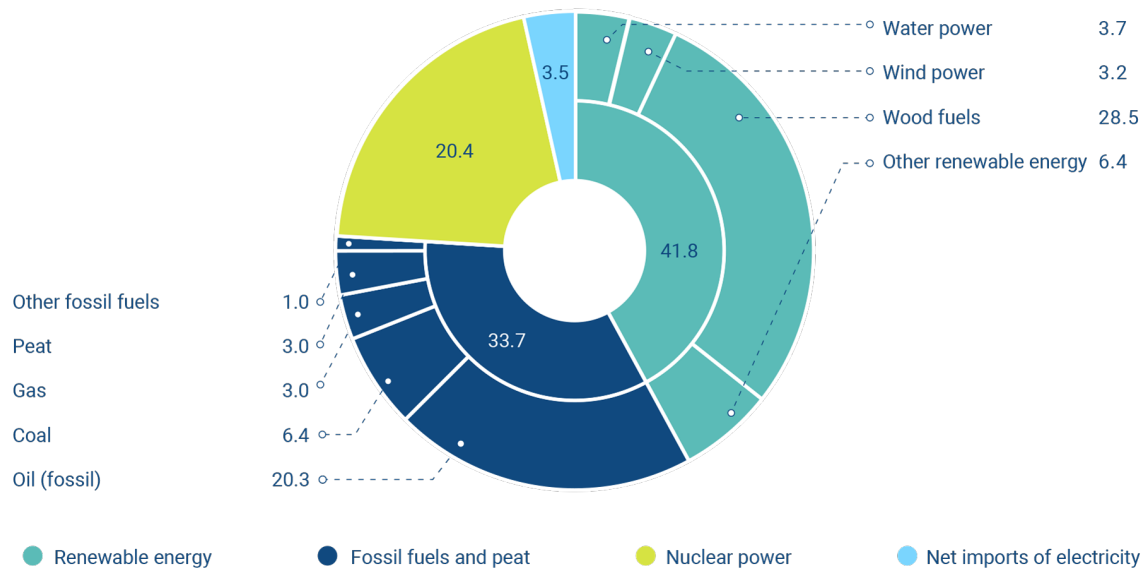
Source:
Statistics Finland

Image 1. The share of renewable energy sources of the total energy consumption in Finland was 41.8% in 2022. Fossil fuels and peat accounted for 33.7% of the total consumption, and nuclear energy for 20.4%. In 2022, net imports were 3.5% of the total energy consumption. The consumption of natural gas nearly halved from the previous year after its supply from Russia stopped in May.

Total energy consumption by energy source 1970-2022

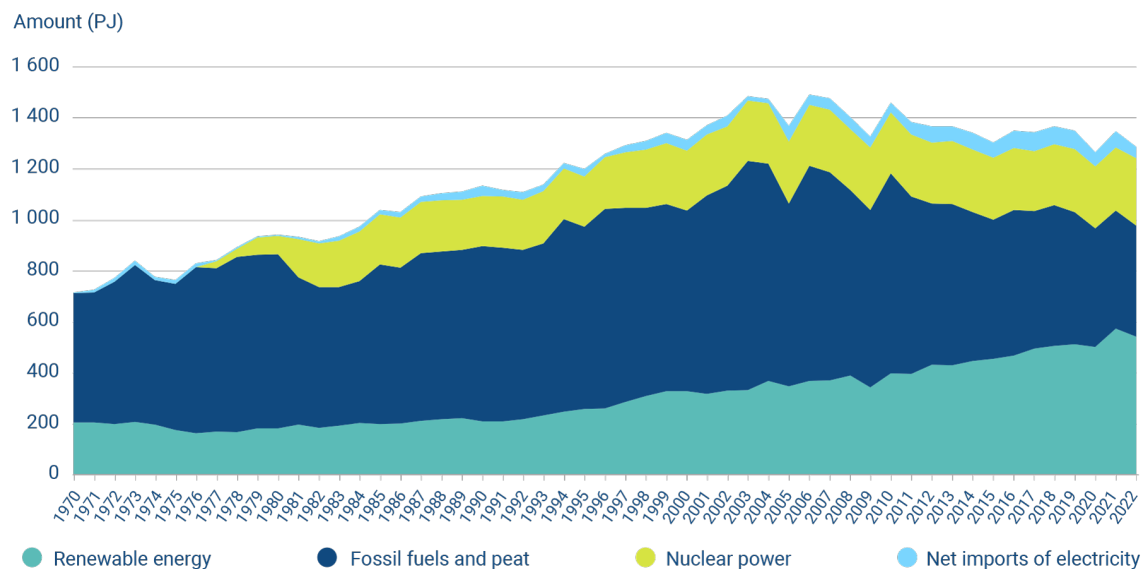
Source:
Statistics Finland

Image 2. In 2020s, renewable energy sources surpassed fossil fuels in Finland's total energy production. In 2022, the difference between the share of renewable energy and share of fossil fuels grew to 8 percentage points.

Final energy consumption by sector

Source:
Statistics Finland

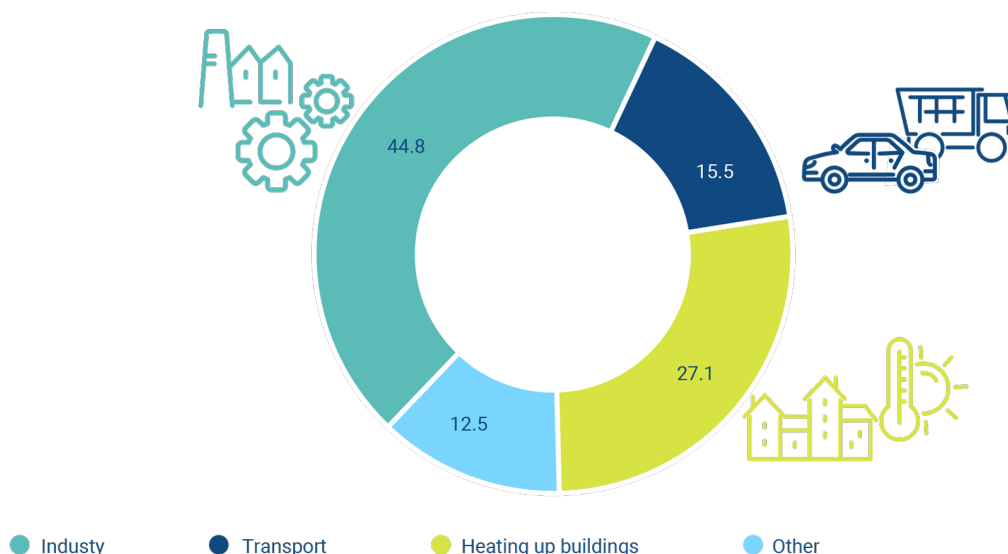


Image 3. In 2022, the share of industry of the final energy consumption of Finland was 44.8%. In EU comparison, the share is quite high. Heating accounted for 27.1% and transport for 15.5% of the final energy consumption.

Electricity production 2022

Source:
Finnish Energy

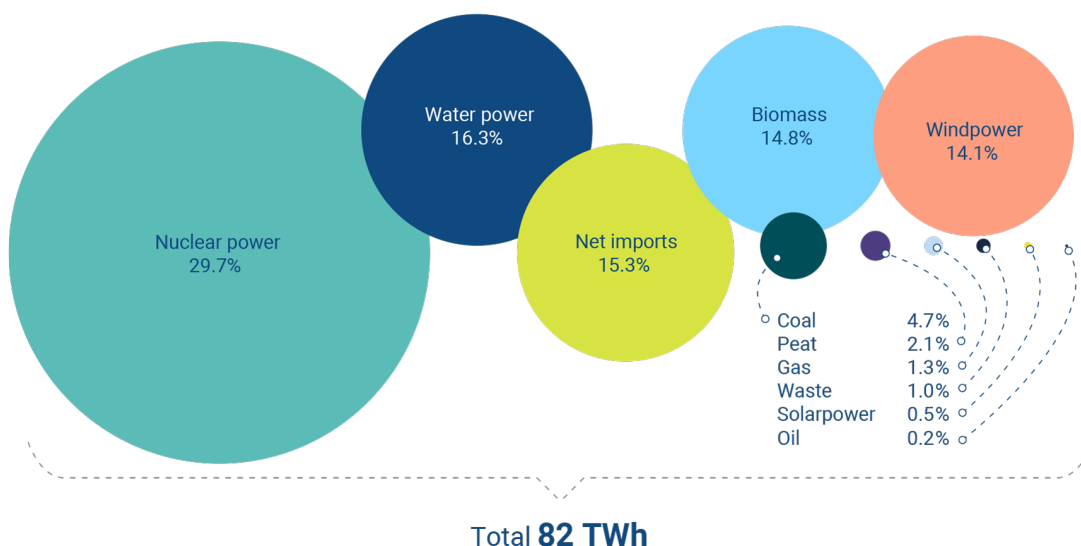


Image 4. In Finland, 89% of electricity was fossil free in 2022. Finland's wind power capacity has increased rapidly in recent years, and in 2022 wind power production covered 14.1% of Finland's electricity production. Nuclear power production grew in 2022 as the new Olkiluoto 3 plant unit was plugged into the national grid in March.

The background is a solid blue color. It features two sets of abstract, white, wavy lines. One set is in the top-left corner, and another is in the bottom-right corner. These lines flow and curve across the page, creating a sense of movement and depth.

7

ESG highlights of 2022

In 2022 the Climate Change Act was renewed; Finland took the top spots again in the global rankings of sustainable development; and by enacting a law that gradually raises the level of R&D funding, Finland seeks to strengthen its competitiveness and productivity.

Reaching carbon neutrality in 2035 is possible but uncertain due to loss of carbon sinks

Finland aims to be carbon neutral soonest of all welfare societies. This is partly made possible by the country's significant and diverse carbon sinks, namely forests, that account for more than 70 per cent of the country.

Carbon neutrality means that emissions and the sinks that sequester carbon are in balance by 2035. In 2022, this target laid in law. The renewed Climate Change Act also raised the bar on Finland's emission reductions targets: 60% by 2030, -80% by 2040 and at least -90% but aiming at -95% by 2050, compared to the levels in 1990.

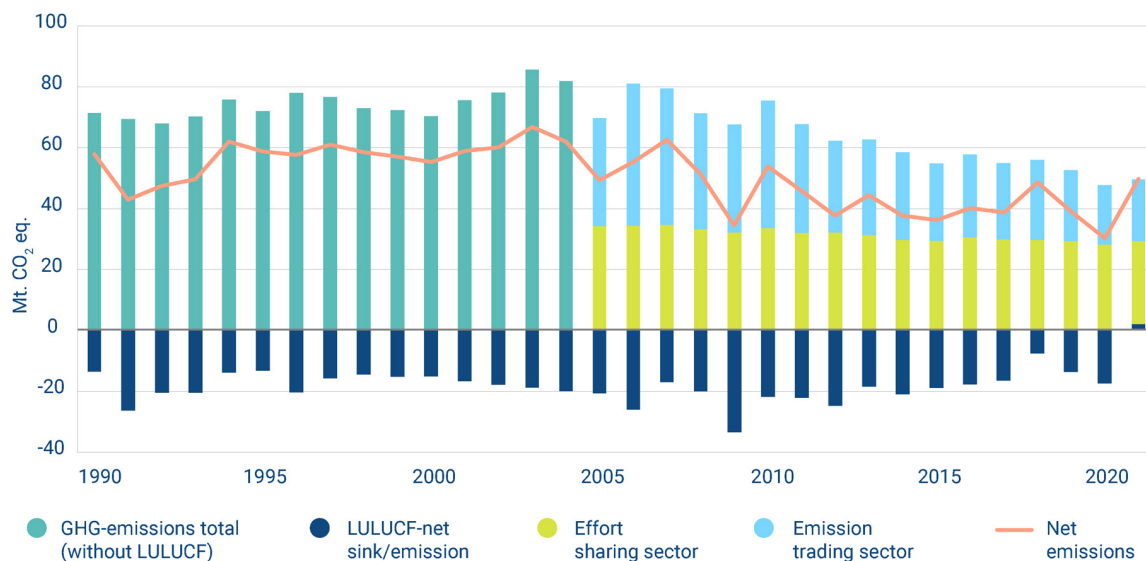
To keep track of the trends in emissions and sinks and to track progress towards the emission reduction targets that have been set, the Government submits Annual Climate Reports to Parliament.

This year's report, published in late October, revealed that while there were no major changes in Finland's total emissions in 2021, the land use and forestry sector has become a net source of emissions for the first time in recorded history. Large harvesting volumes and slower forest growth are assumed to be the main reasons for this. The loss of carbon sinks increases Finland's net emissions, and may increase the need for emission reductions in other sectors. Balancing the economic benefits of forestry with climate and environment protection goals are among the top policy questions ahead of parliamentary elections in 2023.

Finland's total emissions in 2021 were about the same as in the previous year. Total emissions refer to the combined emissions of the effort sharing and emissions trading sectors. Compared to the 2005 levels, the total emissions have decreased by 32%.

Emissions from the effort sharing sector decreased in by 3% in 2021, being clearly below Finland's emission allocation set by the European Union. Finland's emissions from the emissions trading sector increased by 4% in 2021. The increase was due to the higher consumption of coal compared to the previous year. The main reasons for this were the colder weather conditions and the high market price of natural gas.

Development of Finland's total emissions 1990-2021



Net emissions refer to the difference between emissions and removals. Carbon neutrality requires that net emissions are zero. The 2021 data is a proxy estimate. Source: Annual Climate Report 2022, Ministry of the Environment.

Finland ranks No. 1 in the world in sustainable development

In 2022, Finland took the top spot in the annual global and European rankings that track progress on the Sustainable Development Goals. Globally, Finland was ranked first out of 163 countries for second year running.

Of the 17 SDGs, Finland has achieved its goals related to poverty reduction, clean and affordable energy, and high-quality education. Finland is doing well when it comes to social sustainability, and is close to achieving the goals related to reducing inequality, advancing gender equality, decent work and economic growth, and peace and the rule of law.

There are still several goals related to ecological sustainability where Finland has work to do. These include the fight against climate change, the need for more sustainable consumption and production patterns, and halting biodiversity loss. To analyse these challenges in more detail and to seek new approaches for tackling them, the Government reformed its sustainability roadmap in 2022.

However, the key message of the esteemed Sustainable Development Report was that for the second year in a row, the world is no longer making progress on the SDGs. Multiple and simultaneous health, climate, biodiversity, geopolitical and military crises are major setbacks for sustainable development globally. Even rich countries face challenges in achieving some of the SDGs, as they generate negative international spillovers through unsustainable consumption, trade and supply chains.

Source: Sustainable Development Report 2022 (<https://dashboards.sdgindex.org/>).

The report is conducted annually by the UN Sustainable Development Solutions Network and the Bertelsmann Foundation.

Commitment to higher level of R&D funding sealed by legislation

Finland aims to increase its research and development expenditure to 4 per cent of GDP by 2030. This requires increasing the public research and development spending to 1.33 per cent of GDP, assuming that the public sector accounts for one third and the private sector for two thirds of total R&D investments.

In 2022, this political commitment was enshrined in law. A new law, approved by the parliament in December, sets the annual level central government R&D spending in a way that gradually raises the public sector R&D expenditure to the targeted level of GDP by 2030, under the projected economic development. In practice, the government R&D spending will increase by approximately EUR 260 million annually until 2030. The share of R&D expenditure of the Finnish GDP was 3% in 2021.

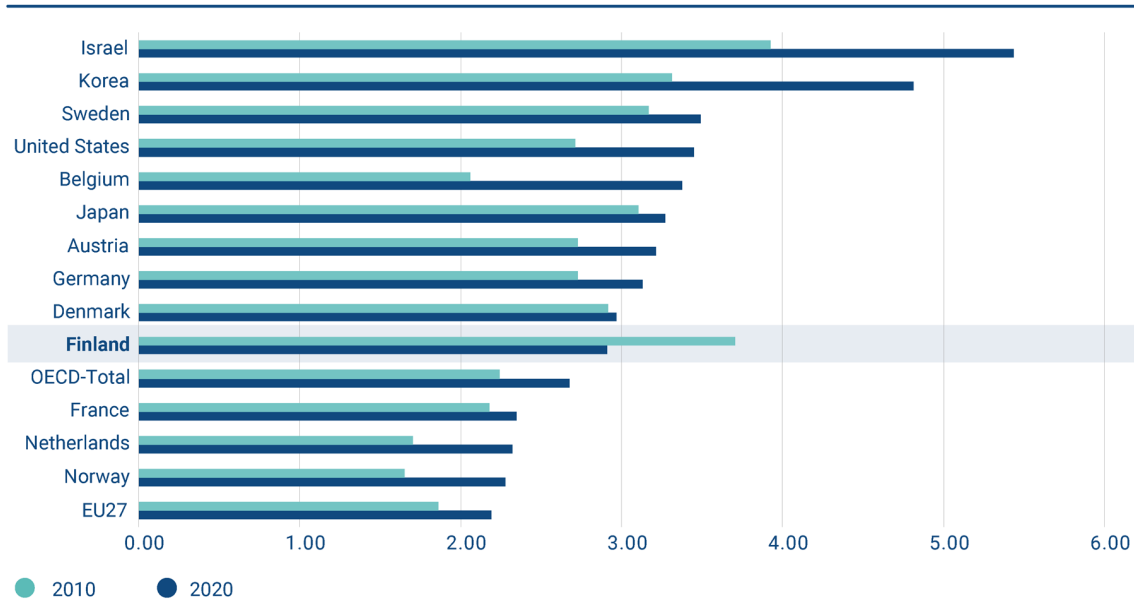
Productivity growth has slowed extensively in advanced economies, but in Finland the turn for slower productivity has been quite significant. At the same time, investments in research, product development and innovations

have been declining in Finland for some time, even though the importance of R&D investments is widely recognised.

Perhaps this is why all parties in the Finnish parliament were unanimous that there needs to be a plan to invest in Finland's competitiveness that extends beyond the four-year government terms. Alongside the funding law, a law for a more extensive and permanent tax incentive for R&D activities was approved in 2022.

R&D expenditure / GDP, %

Source:
OECD MSTI Database



Comparison of R&D intensity of selected countries in 2010 and 2020.



Tiina Heinilä is Communication Officer within the State Treasury Finland's Funding & Investor Relations team.

An aerial photograph of a large white wind turbine in a snowy, forested landscape. The nacelle is in the foreground, and a long blade extends towards the top left. Two workers in high-visibility yellow gear are on the roof of the nacelle. The background is a dense forest of evergreen trees covered in snow.

8

Risk management

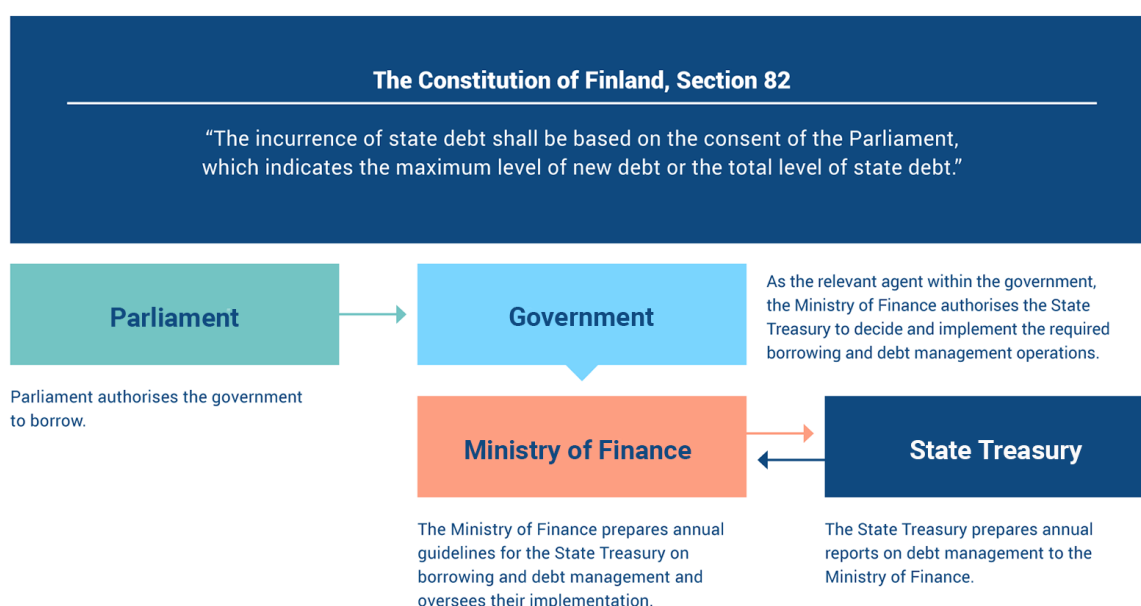
The objective of Finland's central government debt management is to carry out its funding requirements while minimising the financing cost over the long term, and taking account of risk.

Debt management framework

The general principles and objectives of central government debt management are determined by the Ministry of Finance. The State Treasury is a central administrative agency operating under the Ministry of Finance, and implements all debt management operations under the guidelines set by the Ministry.

The Ministry's guidelines set out the general principles and objectives of debt management, instruments used in debt management, and risk limits as well as other restrictions that must be observed. The State Treasury is authorised to raise funds, provided that the nominal value of the central government debt does not exceed EUR 150 billion until further notice and that, at the time of borrowing, the amount of short-term debt does not exceed EUR 25 billion.

The State Treasury is authorised to take out short-term loans when necessary to safeguard the central government's liquidity. The State Treasury can also enter into derivative contracts when managing the risks, in accordance with guidelines set by the Ministry of Finance.



The State Treasury reports regularly on debt management to the Ministry of Finance. The government submits financial statements to Parliament annually, including an overview of the state of the national economy.

Risk management principles

Risk management is an integral part of sound debt management. The objective of risk management is to avoid unexpected losses and safeguard the continuation of operations. The government's objective is to manage all risks in a systematic manner. The risk management process consists of identification of risks, quantification and evaluation of risks, risk monitoring and reporting, and active management of risk positions.

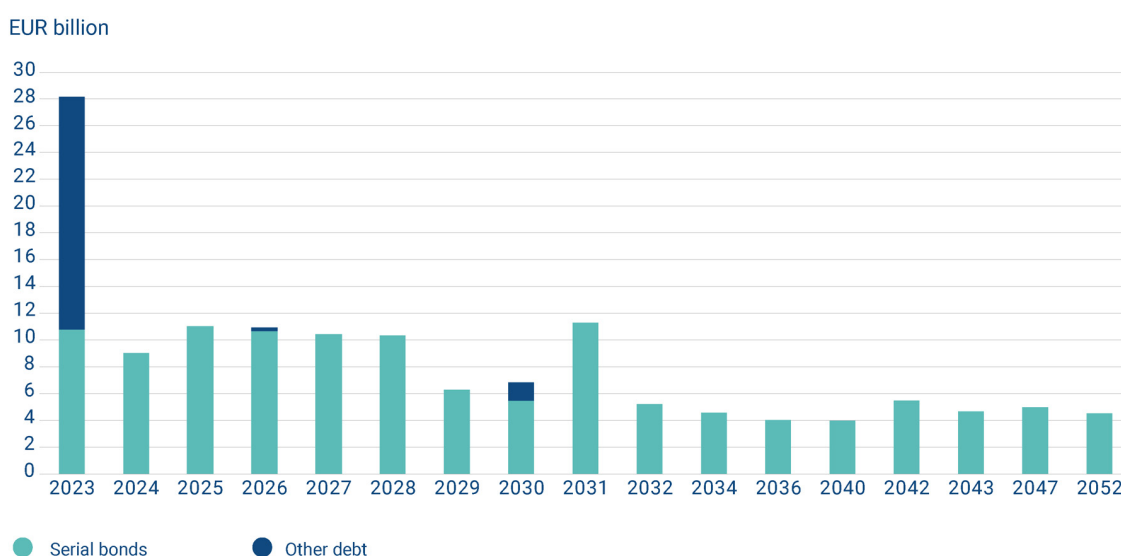
The main risks are financing risk (long-term refinancing and short-term liquidity risk), market risk (interest rate risk and exchange rate risk), credit risk, operational risk and legal risk.

Financing risk

The purpose of Finland's central government's borrowing is to fulfil the government's financing needs in such a way that the cost-efficient management of financial commitments is safeguarded under all circumstances, and the risks associated with financial operations are controlled. Funding is implemented primarily through long-term benchmark bonds and short-term Treasury bills.

Repayment profile of central government debt

As in 31 Dec 2022



Short-term liquidity risk (i.e. risk below 12 months) is managed by short-term funding and maintaining an invested liquidity buffer. Liquidity management is based on cash flow forecasts covering the entire government administration. The Ministry of Finance has set limits on the magnitude of uncovered net cash flows. When investing the surplus, the government aims to minimise credit risk, e.g. via collateralised investments. The short-term funding instruments are short-term credits as well as Treasury bills denominated in both euros and US dollars.

In order to manage the long-term refinancing risk, the Finnish government diversifies its funding by instruments, investor type and geographic areas and manages the maturity profile of the debt. The foundation of government funding is built upon benchmark bonds that facilitate funding even in extensive volumes. The government launches new benchmark bonds in medium- and long-term maturities via syndication. The issuance strategy strives towards a smooth redemption profile and avoids concentrations in redeeming debt.

Market risks

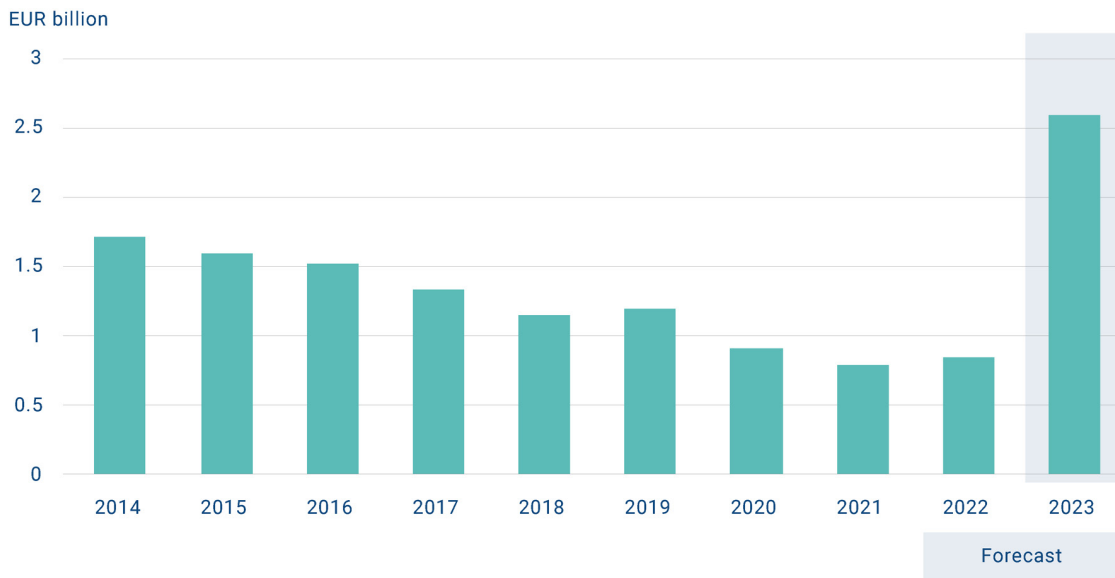
Concerning interest rate risk, the strategic target of the government is expressed in the form of a benchmark portfolio. The benchmark portfolio enables the government to evaluate the performance of operative debt management carried out by the State Treasury. The targeted interest rate risk profile is defined in terms of average fixing (the average period of repricing/refixing the debt).

The State Treasury is allowed to deviate from the benchmark's risk profile within the limits set in the guidelines of the Ministry of Finance. The difference between the relative costs of the actual debt portfolio and the benchmark portfolio constitutes the result of the State Treasury's debt management. In order to fine-tune the government's interest rate risk exposure, the State Treasury uses derivatives, mainly interest rate swaps. At the end of 2022, the average fixing of the central government debt was 4.53 years (duration 3.57 years). The average fixing was almost unchanged from 2021, but duration (i.e. discounted cash-flow weighted maturity) was affected by sharply rising interest rates. As rates rose, the discounted present value of coupons and redemptions fell thus shortening debt portfolio duration.

8 Risk management

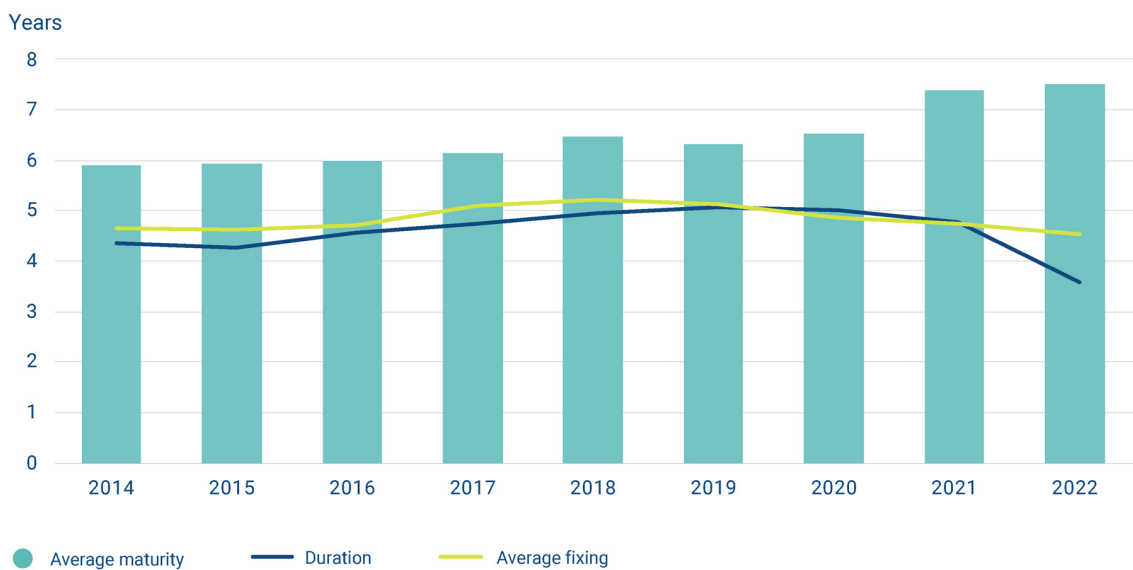
The central government takes no exchange rate risk in its new debt management operation. There was no open exchange rate risk relating to the old debt outstanding at the end of 2022.

Interest expenses of budgetary debt



In 2022 the interest expenses were EUR 0.8 billion. The forecast for 2023 is EUR 2.6 billion.

Interest rate sensitivity of central government debt



At the end of 2022, the average fixing of the central government debt was 4.53 years and duration 3.57 years. The average maturity was 7.52 years.

Credit risk

Credit risk results from investment of cash funds and derivative positions. Credit risk is managed through limits and increasingly through collateral with respect to both derivatives and cash investments. The issue of credit risk is especially relevant due to the large amount of cash funds. The government requires high credit ratings of its counterparties and the guidelines of the Ministry of Finance stipulate counterparty limits in accordance with these credit ratings. To reduce credit risk associated with cash investments, the State Treasury places funds, e. g. via collateralised investments in the form of triparty repo transactions.

Long-term credit risk resulting from derivative transactions is mitigated by the State Treasury through collateral. Like many other sovereign borrowers, Finland uses collateral agreements under the ISDA agreements (CSA, Credit Support Annex). The agreements are two-way agreements with some minor exceptions, i.e. both counterparties have an obligation to pledge collateral.

Operational risk

Operational risk is defined as a risk that results from external factors, technology, or deficient functioning of personnel, the organisation or processes. One area that needs special attention is information security including the security of documents as well as the security of IT systems. Another focal point is development and continuous testing of operational continuity plans. Periodic audits by external cybersecurity experts have also spurred improvements in operative processes.

The principles of operational risk management are implemented in the daily operations. Descriptions of realised risk events and close calls are compiled and reported to management. The State Treasury monitors the risk factors and risk events on a regular basis and makes risk assessments.

Legal risk

Legal risk is the risk resulting from failure to comply with laws and regulations or established market practices as well as invalidity, nullity, voidability, discontinuation or the lack of documentation of contracts, agreements and decisions. The State Treasury has internal guidelines for the management of legal risk. The objectives of legal risk management are to ensure compliance with

applicable laws, rules and regulations and to minimize legal risk by utilising standard agreements and the government's own templates. In addition, steps are taken to ensure that employees are familiar with legislation, regulations and market practices concerning their activities.

Internal control

Internal control is an integral part of management of the State Treasury. The aim of internal control is to reach reasonable assurance that operational functions are effective and efficient, internal and external reporting is reliable and laws and regulations are complied with. A sound system of internal control helps all parts of the organisation to reach their targets.

As part of internal control all main debt management processes are evaluated on an annual basis. The assessment pays special attention to the clarity of objectives, risks and control procedures.

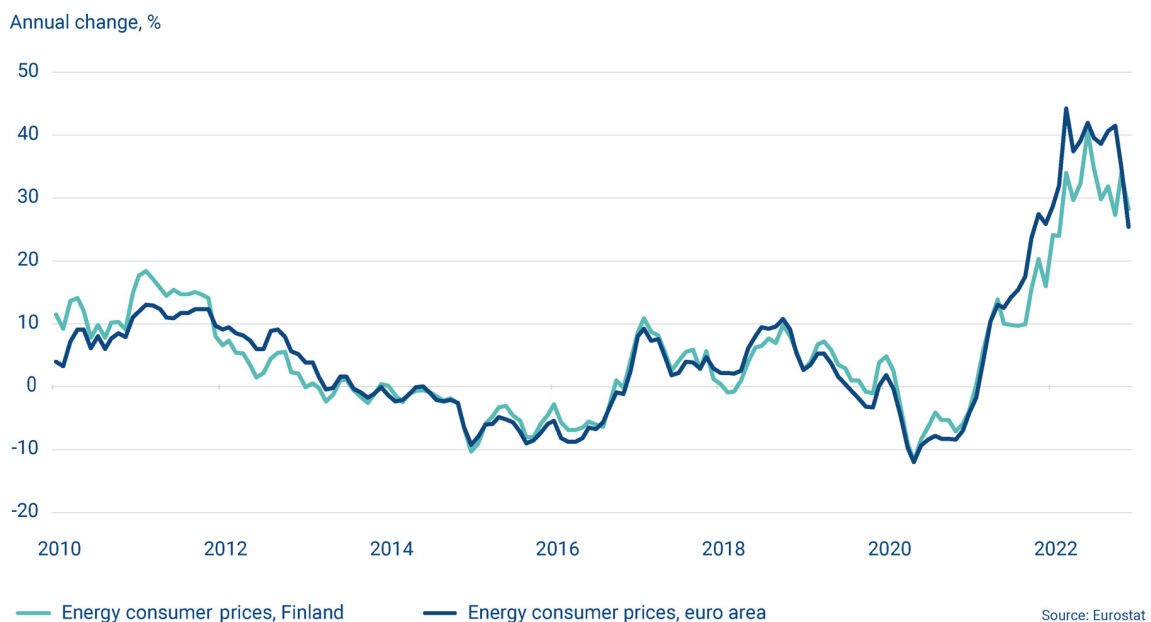


9

Energy prices to level off in 2023

In 2022, energy consumer prices in Finland increased by almost 31% but still more slowly than the euro area average. Electricity wholesale prices were the second lowest in the EU. According to Bank of Finland's forecast, energy consumer prices in Finland will rise more slowly this year and will start declining in 2024.

Energy prices started to rise in the aftermath of the covid-19 pandemic in 2021 when the demand for energy began to recover and, at the same time, disruptions in supply restricted availability. The rise in prices continued during 2022 as a result of the energy crisis prompted by the Russian invasion of Ukraine. Higher raw material prices made energy significantly more expensive also for consumers in 2022, both in Finland and elsewhere in the euro area. However, following a downturn in energy raw material prices in late 2022, consumer prices are also expected to peak this year.

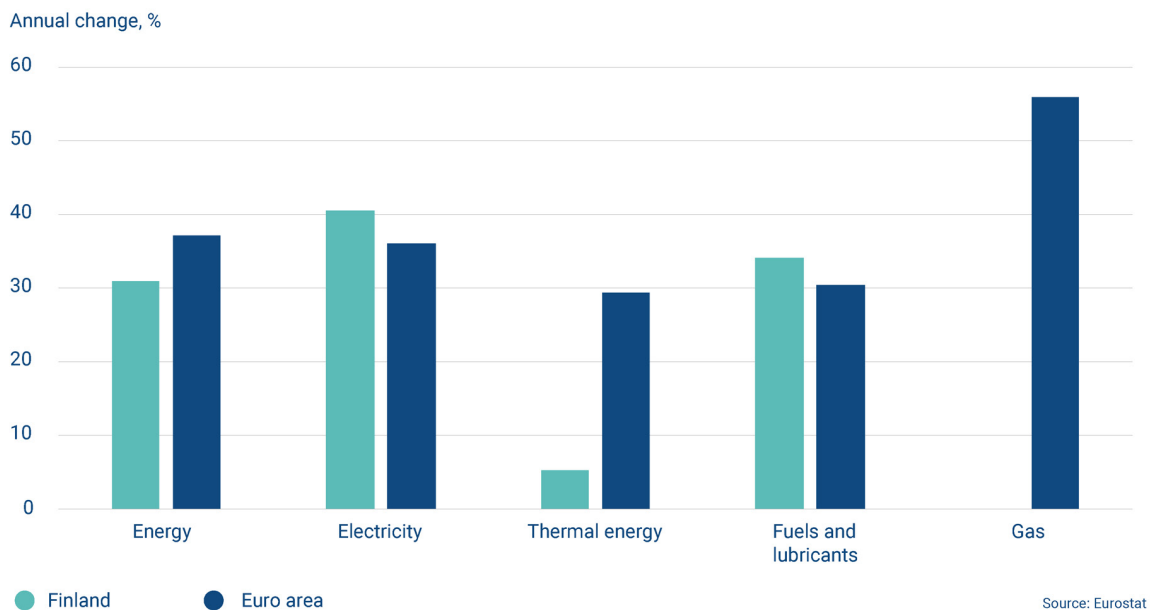


In 2022, energy consumer prices in Finland rose more slowly than the euro area average

In direct terms, energy accounted for about 40% of Finland's inflation rate in 2022. But the rise in energy prices also has indirect impacts on the prices of other commodities and if this is included in the estimations, energy would account for an even large share of the inflation. In Finland, energy consumer prices increased by almost 31% in 2022 (Figures 1 and 2). Fuel prices rose

by more than 34% and electricity prices by just over 40%. At the same time, the price of thermal energy increased by only 6.2%.

In the long term, energy price trends in Finland have been similar to the euro area average, which primarily reflects fluctuations in raw material prices. However, in 2022, energy consumer prices in the euro area went up by 37%, which means that on average, the increase was more rapid than in Finland. The difference is mainly due to natural gas, which on average is widely used by households in the euro area but not in Finland¹. Consumer prices of natural gas in the euro area rose by almost 56% last year. At the same time, consumer prices of such commodities as fuels and electricity increased at a slightly slower rate than in Finland. Termination of electricity imports from Russia in May 2022 boosted electricity prices in Finland. In the euro area, there was already a noticeable rise in electricity prices during 2021, whereas in Finland, due a different contract structure, wholesale prices were passed on to consumer prices more slowly. Despite the rise in electricity prices, electricity wholesale prices in Finland were the second lowest in the EU in 2022 (after Sweden)².



Energy prices rose across the board in 2022

¹ Natural gas (045200) has zero weight in the Finnish HICP consumption basket because few Finnish households use it. At the same time, natural gas is used to generate electricity and district heat in Finland.

² Finnish Energy, Energy Year 2022-Electricity.

When energy inflation comparisons are made, it should also be remembered that the compensatory measures introduced in Finland and in other European countries to soften the impacts of energy prices are shown in the HICP in different ways³.

What about the outlook for energy prices? According to the Bank of Finland's December forecast,⁴ energy consumer prices in Finland will rise more slowly this year and will start declining in 2024. As crude oil prices fall, fuel prices will start pushing the annual inflation rate downwards this spring. According to current market expectations, wholesale prices of crude oil, electricity and natural gas will fall from the high levels experienced last year. However, there is a great deal of uncertainty in these projections. On the one hand, the energy crisis may again come to a head, while on the other hand, higher than expected global demand could also lead to higher energy prices.

“Electricity consumption fell sharply and generation of low-emission electricity increased substantially in Finland in 2022. This may bring positive long-term impacts for consumers and make Finnish industries more competitive as they have access to cleaner and cheaper energy.”

Higher energy prices have adversely impacted consumer purchasing power and increased costs for businesses. The crisis has forced all parties to pay more attention to energy production, energy self-sufficiency and energy con-

³ Eurostat: Treatment of energy price compensation schemes in the HICP.

⁴ <https://www.bofbulletin.fi/en/2022/4/finnish-economy-set-to-slide-into-recession/>.

sumption. Electricity consumption fell sharply and generation of low-emission electricity increased substantially in Finland in 2022. This may bring positive long-term impacts for consumers and make Finnish industries more competitive as they have access to cleaner and cheaper energy.⁵



Harri Pönkä is Senior Economist in the Monetary Policy and Research Department of the Bank of Finland

⁵ Finnish Energy, Energy Year 2022-Electricity.

10

Key figures

Economy	2020	2021	2022	2023	2024	2025
GDP at market prices, change in volume, %	-2.2	3	1.9	-0.2	1.2	1.4
Imports, change in volume, %	-6.2	6	8.1	-1.8	3.1	4.2
Exports, change in volume, %	-7.8	5.4	2.9	1.1	3.6	4.2
Consumer price index, change %	0.3	2.2	7	4	1.9	1.7
Unemployment rate, %	7.7	7.7	6.8	7	6.9	6.7
Current account, relative to GDP, %	0.7	0.6	-2.2	-0.6	-0.4	-0.3
Tax ratio, relative to GDP, %	41.8	43.0	42.0	41.2	41.1	40.8
						Forecast, Ministry of Finance

Government finances	2020	2021	2022	2023	2024	2025
General government net lending, relative to GDP, %	-5.6	-2.7	-0.8	-2.3	-2.2	-2.7
Central government net lending, relative to GDP, %	-5.5	-3.3	-1.8	-3.1	-2.9	-3.3
General government gross debt (EMU), relative to GDP, %	74.8	72.4	71.7	73.4	74.9	76.2
Central government debt, relative to GDP, %	52.4	51.2	51.6	52.9	53.8	54.3
Forecast, Ministry of Finance						

Central government debt and borrowing*	2020	2021	2022
Central government debt, EUR billion	124.8	128.7	141.6
Serial bonds, EUR billion	105.0	115.2	122.6
Treasury bills, EUR billion	18.1	11.8	17.4
Other debt, EUR billion	1.7	1.6	1.6
Gross issuance, EUR billion	39.3	27.8	34.3
Net borrowing, EUR billion	18.3	3.7	12.7

* Central government debt administered by the State Treasury

Risk management	2020	2021	2022
Interest on budgetary debt, EUR billion	0.9	0.8	0.8
Effective interest rate on debt portfolio, %	0.6	0.4	1.1
Average maturity	6.5	7.4	7.5
Duration	5.0	4.8	3.6
Average fixing	4.9	4.7	4.5



State Treasury
Republic of Finland